BRITISH COLUMBIA
DEPARTMENT OF MINES AND PETROLEUM RESOURCES

GEOLOGY, EXPLORATION, AND MINING

IN BRITISH COLUMBIA

1969

134564

Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.
1970

PREFACE

In 1874 the first Minister of Mines of the Province of British Columbia was appointed. He was, amongst other things, charged " with the duty of collecting information on the subject of the mining industries of the Province." Since then the contents of the Annual Report of the Minister of Mines have grown in volume and have changed to include the numerous and varied aspects of the expanding mineral industry.

In 1969 the technical reports on Metals, Placer, Industrial Minerals and Structural Materials, and Coal are being published in a separate volume entitled " Geology, Exploration, and Mining in British Columbia, 1969." It is the first of a new series of annual publications and it will exist as a separate entity from the Annual Report.

An Annual Report of the Minister of Mines and Petroleum Resources will continue to be published. It will contain chapters on Statistics, Departmental Work, Petroleum and Natural Gas, and Inspection of Mines.

METALS

CONTENTS

	Latitude and Longitude	Operator	Metals	Page
General Review of Metal Mining and Exploration				19
Reports on Metal Mines—				
Introduction				25
Atlin Mining Division—				
Haines Road—				
LUNAR	59° 136° N.W.	Max Fuerstner, Erwin Kreft		28
MILDRED, ICE, ACE	59° 136° N.E.	Premier Mining Corporation Ltd.	Cu, Fe	28
Atlin—				
BIG CANYON (RUFFNER)	59° 133° N.W.	Interprovincial Silver Mines Ltd.	Ag, Pb, Zn	28
ADERA	59° 133° N.E.	Adanac Mining and Exploration Ltd.	Mo	29
FALUKA, JOMO	59° 133° N.E.	Canadian Johns-Manville Co. Ltd.		36
BUB	59° 133° N.E.	Coin Canyon Mines Ltd.	Cu, Sn, Pb	36
FOX	59° 133° N.E.	Arctic Gold and Silver Mines Ltd.		36
BEAVER, LOON (DEEP BAY)	59° 133° N.W.	Jason Explorers Ltd.	U, Mo	36
NORSK	59° 133° N.W.	Canadian Johns-Manville Co. Ltd.	Mo	37
Inklin River—				
LC 1, PETER	58° 132° S.W.	Geophoto Services Ltd.	Mo	37
LC 2	58° 132° S.W.	Geophoto Services Ltd.	Cu	37
Sheslay River—				
GO	58° 131° S.W.	Skyline Explorations Ltd.	Cu	38
Liard Mining Division—				
Cassiar–Stewart Road—				
Cassiar—				
CONTACT	59° 129° S.W.	Contex Silver Mines Ltd.	Ag, Pb, Zn, Cu, Mo, Bi	40
CAC	59° 129° S.W.	Cassiar Asbestos Corporation Ltd.		40
RAY, MOS	59° 129° S.W.	Chapparal Mines Ltd.	Mo, Ag, Pb, Zn	40
SILVER QUEEN	59° 129° S.W.	Coast Silver Mines Ltd.	Ag, Pb, Zn, Cu, Mo	41
ELOISE, X, RUSTY	59° 129° S.W.	Value Line Minerals Ltd.	Mo, Cu	41
JOEM, RAIN	59° 129° S.E.	Della Mines Ltd.	Cu, Pb, Zn, Mo	41
LUNA	59° 129° S.E.	Bartle Explorations Ltd.	Ag, Pb, Zn	42
IRON CAP, DOME	59° 129° S.E.	Brettland Mines Ltd.	Ag, Pb, Zn	42
AL	59° 129° S.W.	Tournigan Mining Explorations Ltd.	Cu, Ni	42
RAM	59° 129° S.E.	Fawn Bay Development Ltd.	Cu, Ag	42
ATAN	59° 129° S.E.	Tournigan Mining Explorations Ltd.	Ag, Pb, Zn, Cu	43
Eagle River—				
MAC	58° 129° N.E.	Jupiter Explorations Ltd.	Cu	43
Tanzilla River—				
HU	58° 130° S.E.	Silver Standard Mines Ltd.	Cu	44
MACK (SNOW PEAK PROPERTY)	58° 130° S.E.	Tournigan Mining Explorations Ltd.	Cu, Mo	44
Gnat Creek—				
MOSS	58° 129° S.W.	Lytton Minerals Ltd.	Cu	44
FORD	58° 129° S.W.	Spartan Explorations Ltd.	Cu	44
KING	58° 129° S.W.	Tanzilla Explorations Ltd.	Cu	45
Kinaskan Lake—				
QC, QCA	57° 130° N.E.	Conwest Exploration Co. Ltd.	Cu, Mo	45
MONEY	57° 129° N.W.	Great Plains Development Co. of Canada, Ltd.	Cu, Ag	45
Stikine River—				
Porcupine River—				
RM	57° 131° S.W.	Honda Mining Co. Ltd.		46
Mess Creek—				
SNO, BIRD (LIARD COPPER)	57° 130° S.W.	Hecla Operating Co.	Cu, Mo	46
Kehlechoa River—				
STAR	58° 129° S.E.	Great Plains Development Co. of Canada, Ltd.	Cu	46
HC, CM	58° 128° S.W., 58° 129° S.E.	Pelly Copper Corporation Ltd.	Cu	47
KAC	58° 128° S.W.	Silver-X International Mines Ltd.	Cu	47
JOY, BOW	58° 129° S.E.	Bowser Resources Ltd.	Cu	47
BO	58° 128° S.W.	Cominco Ltd.		48
CLEO	58° 128° S.W.	Union Miniere Explorations & Mining Corp. Ltd.		48

REPORTS ON METAL MINES—*Continued*

Liard Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Turnagain River—				
WOLF	58° 128° N.E.	Rip Van Mining Ltd.	W	48
EWE	58° 128° N.E.	Rip Van Mining Ltd.	W	48
TURN	58° 128° S.W.	Falconbridge Nickel Mines Ltd.	Cu, Ni	49
WT	58° 128° S.W.	Katanga Mines Ltd.		49
WINCO	58° 128° N.E.	Winco Mining and Exploration Ltd.	Cu, Au, Ag	49
Deadwood Lake—				
DEBBIE	59° 128° S.E.	Emperor Mines Ltd.		49
Alaska Highway—				
Racing River—				
MAGNUM (CHURCHILL COPPER)	58° 125° N.E.	Churchill Copper Corporation Ltd.	Cu	50
LADY LUCK	58° 125° S.E.	Largo Mines Ltd.	Cu	50
JOHN	58° 125° N.E.	Churchill Copper Corporation Ltd.	Cu	51
Toad River—				
DAVIS-KEAYS	58° 125° N.E.	Davis-Keays Mining Co. Ltd.	Cu	51
Skeena Mining Division—				
Unuk River—				
MAX	56° 130° S.W.	Granduc Mines, Ltd.	Cu, Fe	54
Portland Canal—				
Tide Lake Flats—				
GRANDUC MINE	56° 130° S.E.	Granduc Operating Co.	Cu, Ag	54
Stewart—				
SILBAK PREMIER MINE	56° 130° S.E.	Granduc Mines, Ltd.	Au, Ag, Cu, Pb, Zn	56
BIG MISSOURI	56° 130° S.E.	Twayco Explorations	Pb, Zn, Ag, Cu	57
SILVER CROWN	56° 129° S.W.	D. Collison	Ag, Pb, Zn	57
LITTLE JOE, GYPSY	55° 129° N.W.	A.C.A. Howe International Ltd.	Au, Ag	57
SWAN	55° 129° N.W.	Granduc Mines, Ltd.	Zn	58
SILVERADO, PROSPERITY, PORTER IDAHO	55° 129° N.W.	Cassiar Consolidated Mines Ltd.	Ag, Pb, Zn	58
Maple Bay—				
MAPLE BAY	55° 130° S.E.	Great Slave Mines Ltd.	Cu	59
Observatory Inlet—				
Anyox—				
CD, CU	55° 129° S.W.	Arcadia Explorations Ltd.	Cu, Fe	59
Alice Arm—				
DOLLY VARDEN, NORTH STAR, TORIC, WOLF	55° 129° N.W.	Dolly Varden Mines Ltd., Bralorne Can-Fer Resources Ltd.	Ag, Pb, Zn	60
TIGER	55° 129° N.W., N.E.	Silver Butte Mines Ltd.	Ag	60
LA ROSE, SPECULATOR No. 2, BUNKER HILL	55° 129° N.W.	Primer Group Minerals Ltd.	Ag, Pb, Zn	63
ESPERANZA, ALICE	55° 129° S.E.	Lori Explorations Ltd.	Ag, Au	64
HAYWIRE	55° 129° S.W.	D. Collison, A. D. York	Ni, Cu	67
ROUNDY CREEK	55° 129° S.E.	Sileurian Chieftain Mining Co. Ltd.	Mo	68
BRITISH COLUMBIA MOLYBDENUM MINE	55° 129° S.E.	British Columbia Molybdenum Ltd.	Mo	69
MOLY	55° 129° S.E.	Bell Molybdenum Mines Ltd.	Mo	69
Nass River—				
KAY	55° 129° S.E.	Phelps Dodge Corporation of Canada Ltd.	Mo	69
Terrace—				
HOPE SILVER	54° 128° N.W.	Kleanza Mines Ltd.	Ag, Pb, Zn	70
LOU	54° 128° N.W.	New Gold Star Mines Ltd.	Zn, Cu, Pb	71
MACEX	54° 128° N.W.	Rio Tinto Canadian Exploration Ltd.	Cu, Mo	71
QUARTZ SILVER	54° 128° N.W.	Atlantis Mines Ltd.	Ag, Pb, Zn	71
Kitimat—				
BOWBYES	54° 128° S.W.	Bowbyes Mines Ltd.	Cu, Fe	72
Queen Charlotte Islands—				
Graham Island—				
MINO	53° 132° S.E.	Falconbridge Nickel Mines Ltd.	Cu, Mo	72
NRM	53° 132° S.E.	Nikamor Bidiuk	Cu	73
Moresby Island—				
TASU MINE	52° 132° N.E.	Wesfrob Mines Ltd.	Fe, Cu	73
Charlotte Lake—				
MM	52° 125° S.E.	Anaconda American Brass Ltd.	Mo, Cu	74
TEL	52° 125° S.W.	Anaconda American Brass Ltd.	Mo	74
ADA	52° 125° S.W.	American Smelting and Refining Co.	Cu	74

101-03626/

Reports on Metal Mines—*Continued*

	Latitude and Longitude	Operator	Metals	Page
Omineca Mining Division—				
Coast Mountains—				
Kitimat Ranges—				
Sandifer Lake—				
GG	53° 127° N.W.	Jason Explorers Ltd.	Cu, W, Bi	76
Hazelton Mountains—				
Nass Ranges—				
GOLD STAR	54° 128° N.E.	Bethlehem Copper Corporation Ltd.	Mo	76
JOE, MO, HJ	54° 128° N.E.	New Gold Star Mines Ltd.	Cu, Ag, Au	77
Bulkley Ranges—				
Zymoetz River—				
CROESUS	54° 128° N.E.	Nittetsu Mining Co. Ltd.	Cu	77
DARDANELLE	54° 128° S.E.	Univex Mining Corp. Ltd.	Au, Ag, Cu, Pb, Zn	78
ZYM	54° 128° S.E.	Mokta (Canada) Ltée	Cu, Ag	78
GRIZZLEY, GLEN, SNOWSHOE, SNO	54° 128° N.E.	Glen Copper Mines Ltd.	Cu, Ag	79
ALLIE	54° 127° N.W.	Pacific Petroleums Ltd.	Cu, Mo	79
ZAP	54° 127° N.W.	Hans E. Madeisky	Cu, Fe, Ag, Au	80
LOU	54° 127° N.W.	Canadian Superior Exploration Ltd.	Cu, Mo, Ag	80
GUY	54° 127° N.E.	Summit Oils Ltd.		81
Chimdemash Creek—				
GOLCONDA	54° 128° N.E.	Shasta Mines & Oils Ltd.	Cu, Ag	81
Kleanza Creek—				
ALVIJA	54° 128° N.E.	Alvija Mines Ltd.	Cu, Ag	82
Legate Creek—				
FM, HUB	54° 128° N.E.	Hub Mining & Exploration Ltd.	Cu, Pb, Zn	83
Seven Sisters Peaks—				
MAG	54° 128° N.E.	Magnetron Mining Ltd.	Ag, Pb, Zn	83
REGA	54° 128° N.E.	Magnetron Mining Ltd.	Ag, Pb, Zn, Cu	83
JACKAL	54° 128° N.E.	Magnetron Mining Ltd.	Ag, Pb, Zn, Cu	84
NIILO	54° 128° N.E.	Magnetron Mining Ltd.	Ag, Pb, Zn, Cu, Fe	84
Rocher Déboulé Range—				
SILVER TIP (SULTANA)	55° 127° S.W.	Sultana Silver Mines Ltd.	Cu, Ag, Mo	85
Hudson Bay Range—				
GLACIER GULCH	54° 127° N.E.	Climax Molybdenum Corporation of British Columbia Ltd.	Mo, W	85
MIDNIGHT, CANADIAN CITIZEN, AMERICAN CITIZEN	54° 127° N.E.	Buval Mines Ltd.	Ag, Pb, Zn, Cu, Au	85
Telkwa Range—				
GRIT	54° 127° N.E.	Silver Standard Mines Ltd.		86
HB, AJ (HUNTER)	54° 127° N.E.	Alrae Engineering Ltd.	Cu, Ag	86
LAVA	54° 127° N.E.	Falconbridge Nickel Mines Ltd.	Cu, Ag	86
DOM	54° 127° S.E.	Thomas George, Mary George, Falconbridge Nickel Mines Ltd.	Cu	87
SR, PG, SC	54° 127° S.W.	Telkwa Mountain Mines Ltd.	Cu, Ag	91
ROCK	54° 127° S.E.	Noranda Exploration Co., Ltd.	Cu, Mo	91
JOE	54° 127° S.E.	Summit Oils Ltd.		92
Tahtsa Ranges—				
Nanika Lake—				
SET, LOST, ICE	53° 127° N.E.	Sierra Empire Mines Ltd.	Ag, Pb, Zn, Cu	92
Tahtsa Lake—				
EMERALD GLACIER MINE	53° 127° N.E.	Pine Glacier Mines Ltd.	Ag, Pb, Zn	92
GLORY	53° 127° N.E.	Jason Explorers Ltd.	Ag, Pb	93
OX (OX LAKE PROPERTY)	53° 127° N.E.	Silver Standard Mines Ltd., American Smelting and Refining Co.	Cu, Mo	93
REA, TL	53° 127° N.E.	Bethlehem Copper Corporation Ltd.	Cu, Mo	97
Troitsa Lake—				
FAB	53° 127° N.E.	Amax Exploration, Inc.	Cu, Pb, Zn	98
OVP, MK	53° 127° S.E., N.E.	Atton Resources Ltd.	Cu, Mo	98
Skeena Mountains—				
Babine Range—				
Hazelton—				
SILVER STANDARD MINE	55° 127° S.W.	Northwestern Midland Development Co. Ltd.	Au, Ag, Pb, Zn, Cd	98
SUNRISE	55° 127° S.E.	Sunrise Silver Mines Ltd.	Ag, Pb, Zn, Sb	99
Smithers—				
TETRA (MORICETOWN SILVER)	55° 127° S.E.	Silver Standard Mines Ltd.	Ag, Pb, Zn	99
CRONIN MINE	54° 126° N.W.	Kindrat Mines Ltd.	Au, Ag, Pb, Zn, Cd	100
ASCOT	54° 126° N.W.	Texas Gulf Sulphur Co.	Pb, Zn	100

REPORTS ON METAL MINES—*Continued*

Omineca Mining Division—*Continued*

Skeena Mountains—*Continued*	LATITUDE AND LONGITUDE	OPERATOR	METALS	PAGE
Atna Range—				
FOG	55° 127° N.E.	Sicintine Mines Ltd.	Mo, Cu	100
ICE	55° 127° N.E.	Sicintine Mines Ltd.	Mo, Cu	101
COB, ICE, JAN, MAD	55° 127° N.E.	Canadian Superior Exploration Ltd.	Mo	101
Sicintine Range—				
SHEL	55° 127° N.E.	Cominco Ltd.	Cu, Mo	101
Cariboo Heart Range—				
FRED, BOBO, MARG (NORTHSTAR)	56° 126° S.E.	Northstar Copper Mines Ltd.	Cu	102
Omineca Mountains—				
Swannell Ranges—				
Chukachida Lake—				
HARMON	57° 127° N.E.	Kennco Explorations, (Western) Ltd.	Cu	102
Toodoggone Lake—				
XENOS	57° 126° S.W.	Kennco Explorations, (Western) Ltd.		102
CHAPPELLE	57° 127° S.E.	Kennco Explorations, (Western) Ltd.		103
Thutade Lake—				
PILLAR	57° 126° S.W.	Kennco Explorations, (Western) Ltd.		103
PINE	57° 126° S.W.	Kennco Explorations, (Western) Ltd.	Cu	103
ATTYCELLEY	57° 126° S.W.	Kennco Explorations, (Western) Ltd.		103
KEMESS	57° 126° S.W.	Kennco Explorations, (Western) Ltd.	Cu	104
McConnell Range—				
MARMOT, THORNE	56° 126° N.W.	Texada Mines Ltd.	Cu, Ag, Mo	104
Wrede Creek—				
RED	56° 126° N.E.	Cominco Ltd.	Cu, Mo	104
Osilinka River—				
BEVELEY	56° 125° S.E.	Donna Mines Ltd.	Ag, Pb	105
Kwanika Creek—				
HOUSTON	55° 125° N.E.	Rip Van Mining Ltd.	Hg	105
BOOM, FRANKIE	55° 125° S.E., N.E.	Hogan Mines Ltd.	Cu	105
GAV, SLOPE	55° 125° N.E.	Northstar Explorations Ltd.	Cu	106
Nation Lakes—				
HEATH	55° 125° S.E.	Amax Exploration, Inc.	Cu	106
NS, NSZ, MIKE	55° 125° S.E.	Marc Explorations Ltd.	Cu	106
HI	55° 125° S.E.	W. R. Bacon	Cu, Mo	107
BAL	55° 125° S.E.	Tchentlo Lake Mines Ltd.	Cu, Mo	107
FAR	55° 124° S.W.	W. R. Bacon		107
TAN	55° 124° S.W.	West Coast Mining & Exploration	Cu	107
WIT, WAG	55° 124° S.E.	Royal Canadian Ventures Ltd.	Ag, Pb, Zn	108
Hogem Ranges—				
Ominicetla Creek—				
JESS, HOLLY	56° 126° S.E.	Bayland Mines Ltd.		108
FIRE	55° 126° N.E.	Kaza Copper Ltd.	Cu, Ag	108
Trembleur Lake—				
DIANE	54° 125° N.W.	Terra Nova Explorations Ltd.		109
Finlay Ranges—				
Bower Creek—				
PINE	57° 126° S.E.	Can-Fer Mines Ltd.	Cu, Pb, Zn	109
Ingenika River—				
FERGUSON	56° 125° N.E.	Dorita Silver Mines Ltd.	Ag, Pb, Zn	109
Nechako Plateau—				
Smithers—				
COLE	54° 126° N.E.	Summit Oils Ltd.		110
Babine Lake—				
CAVZ	55° 126° S.E.	Texas Gulf Sulphur Co.	Cu	110
BETH	55° 126° S.E.	Noranda Exploration Co., Ltd.	Cu	112
ALPHA	55° 126° S.E.	Noranda Exploration Co., Ltd.		112
SPARK, JOY	55° 126° S.E.	David Minerals Ltd.		112
DA	55° 126° S.E.	Noranda Exploration Co., Ltd.	Cu	112
KOFIT	55° 126° S.E.	Canadian Superior Exploration Ltd.	Cu	113
BABE	55° 126° S.W.	Noranda Exploration Co., Ltd.	Cu	113
WOLF	55° 126° S.E.	Canadian Superior Exploration Ltd.	Cu	113
MICK, SKIDOO, SWAMP	55° 126° S.E.	Grandora Explorations Ltd.		114
NEWMAN	55° 126° S.E.	Noranda Exploration Co., Ltd.	Cu	114
GRANISLE MINE	54° 126° N.E.	Granisle Copper Ltd.	Cu	114
BADGE	54° 126° N.E.	The Granby Mining Co. Ltd.		115
TACHI	54° 126° N.E.	Noranda Exploration Co., Ltd.	Cu, Mo	115
TOPLEY, BABINE, TOTEM	54° 126° N.E.	Tro-Buttle Exploration Ltd.	Cu	117
DONNA, KAREN	54° 126° N.E.	Whitesail Mines Ltd.	Cu	118
BAB	54° 126° N.E.	Canadian Superior Exploration Ltd.		118

Reports on Metal Mines—*Continued*

Omineca Mining Division—*Continued*

Nechako Plateau—*Continued*	Latitude and Longitude	Operator	Metals	Page
Babine Lake—*Continued*				
FG	54° 126° N.E.	Bethlehem Copper Corporation Ltd.	Cu	118
RED	54° 126° N.E.	Canadian Superior Exploration Ltd.	Cu	119
CLEO, LANA	54° 126° N.E.	Whitesail Mines Ltd.		119
SUMMIT	54° 126° N.E.	Summit Oils Ltd.		119
LORNE	54° 125° N.E.	Endako Mines Ltd.	Ag, Pb	120
Sutherland River—				
KID	54° 124° S.W.	Amax Explorations, Inc.	Mo	120
Houston—				
DEL SANTO	54° 126° N.W.	Falconbridge Nickel Mines Ltd.	Cu, Ag, Zn	120
LUCKY, LADY, PEHU	54° 126° N.W.	Noranda Exploration Co., Ltd.	Cu	120
LV	54° 126° S.W., N.W.	Buval Mines Ltd.	Cu, Ag	121
ED	54° 126° S.W.	Texas Gulf Sulphur Co.	Cu, Ag	121
BARR, LYBDENUM	54° 126° S.W.	Fortune Channel Mines Ltd.	Mo, Cu	122
DOT, ROD, TON, LUKY	54° 126° S.W.	American Smelting and Refining Co.	Au, Ag, Zn	122
Owen Lake—				
The Geology of the Owen Lake Area				122
SILVER QUEEN (NADINA)	54° 126° S.W.	Nadina Explorations Ltd.	Au, Ag, Cu, Zn, Pb, Cd	126
DIAMOND BELLE	54° 126° S.W.	Frontier Explorations Ltd.	Ag, Pb, Zn, Cu	139
GARY	54° 126° S.W.	Summit Oils Ltd.		141
JIM	54° 126° S.W.	Summit Oils Ltd.		141
SPOOK, PARK	54° 126° S.W.	Summit Oils Ltd.		142
Goosly Lake—				
SG (SAM GOOSLY)	54° 126° S.E.	Kennco Explorations, (Western) Ltd.	Cu, Ag	142
RAY	54° 126° S.E.	Iskut Silver Mines Ltd.		148
DEV	54° 126° S.E.	Summit Oils Ltd.		149
KG	54° 126° S.E.	Panther Mines Ltd.		149
KG	54° 126° S.E.	Bayland Mines Ltd.		150
SAM	54° 126° S.E.	Maverick Mountain Resources Ltd.		150
NWB	54° 126° S.E.	Dorita Silver Mines Ltd.		150
Morice Lake—				
KING, QUEEN, JACK	54° 127° S.E.	Falconbridge Nickel Mines Ltd.	Cu, Mo	151
Burns Lake—				
JIM, GREEN	54° 125° S.W.	Summit Oils Ltd.		151
Endako—				
CHESS	54° 125° S.E.	Mercury Explorations Ltd.		152
KEN	54° 125° S.E.	Amax Exploration, Inc.	Mo	152
SAM	54° 125° S.E.	Endako Mines Ltd.		152
BONUS	54° 125° S.E.	Mercury Explorations Ltd.		152
NU, ELK	54° 125° S.E.	Denak Mines Ltd.	Mo	153
CO	54° 125° S.E.	Endako Mines Ltd.	Mo	153
ENDAKO MINE	54° 125° S.E.	Endako Mines Ltd.	Mo	153
Nithi Mountain—				
OWL, NIT	53° 124° N.W.	Anaconda American Brass Ltd.	Mo, Cu	154
Tetachuck Lake—				
TET	53° 125° S.W.	American Smelting and Refining Co.	Cu, Mo	154
NAT	53° 125° S.W.	American Smelting and Refining Co.	Cu, Mo	154
T, CAP, TUT	53° 125° S.E.	Rio Tinto Canadian Exploration Ltd.	Cu, Mo, Zn	155
Chutanli Lake—				
C, 2	53° 124° S.W.	Rio Tinto Canadian Exploration Ltd.	Cu, Mo	155
CHU	53° 124° S.W.	American Smelting and Refining Co.	Cu, Mo	155
Fraser Basin—				
Fort St. James—				
HAT	54° 124° N.E.	W. R. Bacon	Cu	155
TOAD	54° 124° N.W.	Cominco Ltd.	Hg	156
PINCHI LAKE MINE	54° 124° N.E.	Cominco Ltd.	Hg	156
CIN	54° 124° N.E., N.W.	Highland Mercury Mines Ltd.	Hg	156
CALEX	54° 124° S.E.	Cominco Ltd.	Hg	157
Cariboo Mining Division—				
Giscome—				
SAMSON, TIN, CAN	54° 122° S.E.	Central B.C. Exploration Ltd.	Ag, Pb, Zn, Cu	160
Willow River—				
LOON	53° 122° N.E.	Noranda Exploration Co., Ltd.	Cu	160
TP	53° 122° S.E.	W. R. Bacon	Cu	160
Ahbau Creek—				
THUNDER	53° 122° S.E.	Cariboo Minelands Ltd.	Cu, Ag, Au	161
West Road River—				
B	53° 123° S.E.	Rio Tinto Canadian Exploration Ltd.	Cu, Mo	161

Reports on Metal Mines—*Continued*

Cariboo Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Tweedsmuir Park—				
BOOM, WILF	52° 126° N.E., 53° 126° S.E.	Kerr Addison Mines Ltd.	Cu, Mo	161
Charlotte Lake—				
KF	52° 125° S.E.	Anaconda American Brass Ltd.	Cu, Mo	162
Wells—				
AURUM MINE	53° 121° S.W.	The Cariboo Gold Quartz Mining Co. Ltd.	Au	162
McLeese Lake—				
Geology of the Granite Mountain Stock				162
JAN, SUMMIT	52° 122° N.E.	Gibraltar Mines Ltd., Canex Aerial Exploration Ltd.	Cu, Mo	173
SUNSET	52° 122° N.E.	Canex Aerial Exploration Ltd.	Cu, Mo	173
POLLYANNA	52° 122° N.E.	Canex Aerial Exploration Ltd.	Cu, Mo	173
HD	52° 122° N.E.	Canex Aerial Exploration Ltd.	Cu, Mo	174
BURG	52° 122° N.E.	Pyramid Mining Co. Ltd.		174
BEN	52° 122° N.E.	Croydon Mines Ltd.		174
AXEL, MAX, JIB	52° 122° N.E.	Iso Explorations Ltd.		174
BJ, JP, BARB	52° 122° S.E.	Midnight Consolidated Mines Ltd.	Cu, Au	175
TYEE	52° 122° S.E.	Tyee Lake Resources Ltd.		175
Likely—				
POLLEY, RED ROCK	52° 121° N.W.	Ardo Mines Ltd.	Cu, Au	175
CARIBOO-BELL	52° 121° N.W.	Cariboo-Bell Copper Mines Ltd.	Cu	176
MARINER C	52° 121° N.E.	Spannallen Mining Ltd.	Au, Ag, Cu, Pb	176
Miocene—				
WIGGINS CREEK	52° 121° S.W.	Grandeur Mines Ltd.	Cu	176
Horsefly—				
HO	52° 121° S.E.	Anaconda American Brass Ltd.	Cu	177
FLY	52° 121° S.E.	Silver Standard Mines Ltd.	Cu	177
CS, EN	52° 120° S.W.	Amax Exploration, Inc.	Cu	177
MAG	52° 121° S.E.	Royal Canadian Ventures Ltd.		177
Big Timothy Mountain—				
BOSS MOUNTAIN MINE	52° 120° S.W.	Brynnor Mines Ltd.	Mo	178
Lac la Hache—				
SS, JE, JT	52° 121° S.E.	Monte Cristo Mines Ltd.	Cu	178
Clinton Mining Division—				
Tatlayoko Lake—				
BAT	51° 124° N.W.	E. Flesher, J. Davis		180
Taseko Lakes—				
BB	51° 123° S.W.	Taseko Mines Ltd.	Cu, Au	180
BANNER	51° 123° S.W.	Bethlehem Copper Corporation Ltd.	Cu	180
TASEKO, SPOKANE, EMPRESS, MOHAWK	51° 123° S.E.	Scurry-Rainbow Oil Ltd.	Cu, Mo, Au, Ag	181
RH	51° 123° S.E.	American Smelting and Refining Co.	Cu, Mo	181
BILL, NW	51° 123° S.E.	Victor Mining Corporation Ltd.	Cu, Mo	181
BJB	51° 123° S.E.	Burlington Mines Ltd.	Cu, Mo	182
Chilcotin River—				
FARWELL	51° 122° N.W.	Chilcotin Silver Mines Ltd.		182
SILVER, KLEIV, MARIE	51° 122° N.E.	Chilcotin Silver Mines Ltd.		182
ML	51° 122° N.W.	Royal Canadian Ventures Ltd.	Cu	182
Lac la Hache—				
SODA	51° 121° N.E.	Anaconda American Brass Ltd.		183
DB	51° 121° N.E.	Anaconda American Brass Ltd.		183
PEACH, PIT, TIM	51° 121° N.E.	American Smelting and Refining Co.	Cu	183
FG	51° 121° N.E.	Royal Canadian Ventures Ltd.		184
SKULL, STAN, MAC	51° 121° N.E.	Canway Explorations Ltd.		184
70 Mile House—				
BD, VB, WIN	51° 121° S.E.	Amax Exploration, Inc.	Cu	184
Lillooet Mining Division—				
Bridge River—				
Tyaughton Creek—				
MANITOU	51° 122° S.W.	Empire Mercury Corporation Ltd.	Hg	185
PAUL	50° 122° N.W.	Rio Tinto Canadian Exploration Ltd.	Hg	185
LUCKY STRIKE, RICKY, BOB	51° 122° S.W., 50° 122° N.W.	Bridge River United Mines Ltd.	Ag, Au, Cu, Pb, Zn	185
CHARLOTTE, ANN	50° 122° N.W.	Bethlehem Copper Corporation Ltd.	Hg	186
TUNGSTEN QUEEN	51° 122° S.W.	Bethlehem Copper Corporation Ltd.	Hg, W	186
SILVERQUICK MINE	51° 122° S.W.	Silverquick Development Co. (B.C.) Ltd.	Hg	186
Cadwallader Creek—				
BRALORNE MINE	50° 122° N.W.	Bralorne Can-Fer Resources Ltd.	Au	187
CHALCO	50° 122° N.W.	Union Carbide Exploration Corp.	W, Mo, Cu	187

Reports on Metal Mines—*Continued*

	Latitude and Longitude	Operator	Metals	Page
Lillooet Mining Division—*Continued*				
Bridge River—*Continued*				
Yalakom River—				
EAGLE	50° 122° N.E.	Condor Mines Ltd.	Hg	188
Pemberton—				
OWL, OC, KB	50° 122° S.W.	Pine Lake Mining Co. Ltd.	Cu, Mo	188
AX, ZIP	50° 122° S.W.	Cerro Mining Company of Canada Ltd.	Cu	189
N, TEXAS	50° 122° S.W., N.W.	Malibu Metals Ltd.	Cu, Au, Ag, Fe	189
Vancouver Mining Division—				
Klinaklini River—				
JAY	51° 125° N.W.	American Smelting and Refining Co.	Cu	189
Cracroft Islands—				
LUCKY STRIKE, G	50° 126° N.W.	Rio Tinto Canadian Exploration Ltd.	Cu	190
Toba Inlet—				
R, WAPO	50° 124° S.W., 50° 125° S.E.	Rio Tinto Canadian Exploration Ltd.	Cu, Mo	190
Powell River—				
NIC	49° 124° N.E.	Noranda Exploration Co., Ltd.	Cu, Mo	190
Alta Lake—				
CALLAGHAN, TARN	50° 123° S.E.	Barkley Valley Mines Ltd.	Ag, Pb, Zn, Cu, W, Sb, Au	191
VAN, SUNNY CAVE	50° 123° S.E.	Van Silver Explorations Ltd.	Au, Ag, Cu, Pb, Zn, W	191
ELK	50° 123° S.E.	Noranda Exploration Co., Ltd.	Cu, Mo	191
LONDON, AXE	50° 122° S.W.	New Jersey Zinc Exploration Co. (Canada) Ltd.	Cu	192
AZURE	50° 122° S.W.	Noranda Exploration Co., Ltd.	Cu	192
Squamish—				
CHEAKAMUS BRIDGE, TERU	49° 123° N.E.	Squamish Stone & Silica Co. Ltd.	Cu	192
INDIAN RIVER COPPER, LH	49° 123° N.E.	Croydon Mines Ltd.	Cu, Zn	193
Howe Sound—				
BRITANNIA MINE	49° 123° N.E.	Anaconda Britannia Mines Ltd.	Cu, Zn	193
VENUS	49° 123° N.E.	Squamish Stone & Silica Co. Ltd.	Cu, Mo	194
New Westminster Mining Division—				
Pitt Lake—				
BOUNTY, EXPO	49° 122° N.W.	Kennedy Silver Mines Ltd.	Cu, Zn, Au, Ag	194
Stave Lake—				
MO	49° 122° N.E., S.E.	Largo Mines Ltd.		195
Harrison Lake—				
ARANY, EMILE	49° 121° S.W.	Salvation Mines Ltd.	Cu, Pb, Zn, Ag	195
NIK	49° 121° S.W.	Blackjay Exploration Ltd.	Ni, Cu	195
EMPRESS	49° 121° S.W.	Noranda Exploration Co., Ltd.	Cu, Mo	195
Chilliwack River—				
TIN, CAN	49° 121° S.W.	Salvation Mines Ltd.		196
Chilliwack Lake—				
JON	49° 121° S.E.	John M. Macandrew	Cu, Mo	196
Hope—				
PRIDE OF EMORY MINE	49° 121° S.E.	Giant Mascot Mines Ltd.	Ni, Cu	196
BEA, GIANT, SWEDE	49° 121° S.E., S.W.	Kelso Explorations Ltd.	Ni, Cu	197
CLOVERLEAF	49° 121° S.W.	Black Mastodon Minerals Ltd.	Au, Ag, Ni, Cu	198
DIANE	49° 121° S.W.	Almaza Mining Co. Ltd.	Au	198
EUREKA, VICTORIA	49° 121° S.E.	Holy Cross Mountain Mines Ltd.	Ag	199
Skagit River—				
AM	49° 121° S.E.	G.M. Explorations Ltd.	Cu, Ag, Mo	199
Nanaimo Mining Division—				
Port Hardy-Coal Harbour—				
AIRD	50° 128° N.E.	Utah Construction & Mining Co.	Cu	200
CS	50° 128° N.E.	Quintana Minerals Corporation	Cu, Fe	200
A, H	50° 128° N.E.	R. H. D. Philp, M. Gibbeson		201
AAA	50° 128° N.E.	Spartan Explorations Ltd.	Cu	201
TI, MOM, BUD	50° 127° N.W.	Acheron Mines Ltd.	Cu, Zn	201
CEE, KAYE, JACK	50° 127° N.W., 50° 128° N.E.	Holberg Mines Ltd.		201
EXPO	50° 127° N.W.	Utah Construction & Mining Co.	Cu	202
KW, H	50° 127° N.W.	D. K. Bragg, D. W. Tibbott	Cu	202
LUK	50° 127° N.W.	Secondo Mining Ltd.		202
M	50° 127° N.W.	Meteor Mining Co. Ltd.	Cu	203
DEB	50° 127° N.W.	Utah Construction & Mining Co.	Cu	203
ACE, BETA	50° 127° N.W.	Brettland Mines Ltd.		203
GB No. 2 GROUP	50° 127° N.W.	Tro-Buttle Exploration Ltd.	Cu, Zn, Mo	203

REPORTS ON METAL MINES—*Continued*

Nanaimo Mining Division—*Continued*	LATITUDE AND LONGITUDE	OPERATOR	METALS	PAGE
Port Hardy-Coal Harbour—*Continued*				
GB No. 1 GROUP	50° 127° N.W.	Tro-Buttle Exploration Limited	Cu, Zn	204
GUB, TAB	50° 127° N.W.	Brettland Mines Ltd.	Cu	204
ISLAND COPPER (BAY)	50° 127° N.E.	Utah Construction & Mining Co.	Cu, Mo	204
DEM	50° 127° N.W.	Pathfinder Uranium & Nickel Mines Ltd.	Cu	205
HAR, EXPO	50° 127° N.E.	P.D. Mines Ltd.	Cu	205
KOERNER, SAUCE	50° 127° N.E.	Newmont Mining Corporation of Canada Ltd.	Cu, Mo	205
Quatsino Sound—				
Kains Point—				
KAINS	50° 128° S.E.	Utah Construction & Mining Co.	Cu	206
Mahatta River—				
BRAD	50° 127° S.W.	Utah Construction & Mining Co.	Cu	206
Neroutsos Inlet—				
STAR	50° 127° S.W.	Newmont Mining Corporation of Canada Ltd.	Cu, Mo	206
RH, ELK, ECHO, CAM	50° 127° S.W.	Cambridge Mines, Ltd.	Cu, Mo	206
Alice Lake—				
CLANCY (ALICE LAKE, PEERLESS, PILGRIM)	50° 127° S.E.	Alice Lake Mines Ltd.	Au, Ag, Cu, Pb, Zn, Fe	207
Benson River—				
OLD SPORT MINE	50° 127° S.E.	Coast Copper Co. Ltd.	Cu, Fe	207
MAGNETIC, MAYNARD, IRON	50° 127° S.E.	A. H. Ainsworth, Quatsino Copper-Gold Mines Ltd.		208
Port McNeill—				
NOR	50° 127° N.E.	Ensbrook Mines Ltd.		208
TIE, SUSAN	50° 127° N.E.	Cominco Ltd.	Cu, Mo	208
ED	50° 127° N.E.	Arlington Silver Mines Ltd.		209
MIKE, BOB	50° 127° S.E.	Largo Mines Ltd., Great Northern Petroleum & Mines Ltd.		209
Bonanza Lake—				
BON	50° 126° S.W.	Brettland Mines Ltd.	Fe, Cu	209
Kelsey Bay—				
ROONEY	50° 126° S.E.	Newconex Canadian Exploration Ltd.	Cu	209
BOYES	50° 126° S.E.	Bethlehem Copper Corporation Ltd.	Cu	210
CAM, DOC	50° 126° S.E.	Rip Van Mining Ltd.	Cu	210
WR	50° 125° S.W.	Newconex Canadian Exploration Ltd.	Cu	210
McCreight Lake—				
BEAR	50° 125° S.W.	Vanco Explorations Ltd.	Cu	211
Menzies Bay—				
CHAL	50° 125° S.E.	Casco Holdings Ltd.	Cu	211
Quadra Island—				
COPPER ROAD, LUCKY JIM	50° 125° S.E.	Western Mines Ltd.	Au, Ag, Cu	211
COPPER BELL	50° 125° S.E.	Quadra Bell Mining Co. Ltd.	Cu	212
COPPER HILL, COLLEEN	50° 125° S.E.	Lonrho Explorations Ltd.	Cu	212
Courtenay—				
MT. WASHINGTON COPPER	49° 125° N.E.	Marietta Resources Co. Ltd.	Cu, Mo, Au, Ag	212
FAITH, RIM	49° 125° N.E.	Falconbridge Nickel Mines Ltd.		213
Texada Island—				
TEXADA MINE	49° 124° N.W.	Texada Mines Ltd.	Fe, Cu	213
SEEL, AB	49° 124° N.E.	Cambrian Explorations Ltd.	Cu	213
VERN, WIN	49° 124° N.E.	Kitimat Copper Co. Ltd.	Cu	214
Lasqueti Island—				
VENUS, ST. JOSEPH	49° 124° N.E.	Sweepstake Mines Ltd.	Cu, Au, Ag, Zn	214
Alberni Mining Division—				
Kyuquot Sound—				
KAS (CALEDONIA)	50° 127° S.E.	Vargas Mines Ltd.	Fe, Cu	215
KYU	50° 127° S.E.	Newmont Mining Corporation of Canada Ltd.	Cu	215
Zeballos—				
FL	50° 126° S.W.	Zeballos Iron Mines Ltd.	Fe	215
Hesquiat—				
HESQUIAT, SATCHIE, BROWN JUG	49° 126° S.E., N.E.	American Smelting and Refining Co.	Cu	216

Reports on Metal Mines—*Continued*

	Latitude and Longitude	Operator	Metals	Page
Alberni Mining Division—*Continued*				
Tofino—				
ORMOND, CONTACT	49° 126° S.E.	Van-West Minerals, Ltd.	Cu, Zn, Ag, Au	216
PW, RW, JB	49° 125° S.W., 49° 126° S.E.	Fort Reliance Minerals Ltd.		216
CAT, CYPRUS	49° 125° S.W.	McIntyre Porcupine Mines Ltd.	Au, Cu, Mo	217
MN	49° 125° S.W., 49° 126° S.E.	Vargas Mines Ltd.	Cu, Zn	217
KALAPPA	49° 125° S.W.	Fort Reliance Minerals Ltd.	Au, Ag, Cu	217
FOREMOST, CLEAR CREEK, COPPER CREEK	49° 125° S.W.	Sun-West Minerals, Ltd.	Cu, Ni, Mo	217
Buttle Lake—				
LYNX MINE	49° 125° N.W.	Western Mines Ltd.	Cu, Zn, Ag, Au	218
PRICE	49° 125° N.W.	Western Mines Ltd.	Au, Ag, Cu, Pb, Zn	218
PARAMOUNT	49° 125° N.W.	Western Mines Ltd.	Cu, Zn, Ag, Au, Pb	218
CREAM, BEAR	49° 125° S.W.	Cream Silver Mines Ltd.	Ag, Au, Cu, Pb, Zn	219
Kennedy River—				
VENT	49° 125° S.E.	Raw Materials Ventures Inc.	Cu, Mo	219
Port Alberni—				
HERB, MOON, RED, BLUE	49° 125° S.E.	Chilco Developments Ltd.	Cu	219
HM	49° 125° S.E.	Great Central Mines Ltd.	Sb, Hg, Cu	220
ANDY, PAK	49° 124° S.W.	Noranda Exploration Co., Ltd.	Cu, Mo	220
Barclay Sound—				
SECHART (BALMORAL)	48° 125° N.E.	Rip Van Mining Ltd.	Hg	220
Nitinat River—				
ROB (NADIRA)	48° 124° N.W.	Amax Exploration, Inc.	Cu	221
NAT, NIT, LX	48° 124° N.W.	Spacemaster Minerals Ltd.		221
Victoria Mining Division—				
Nitinat River—				
AVALLIN	48° 124° N.E., N.W.	Quintana Minerals Corporation	Fe, Cu, Mo	221
Clo-oose—				
DC, RW, IT, ULL	48° 124° N.W., N.E.	Cheewhat Mining Ltd.	Cu, Ag, Zn	222
Cowichan Lake—				
AB	48° 124° N.E.	Mt. Washington Copper Co. Ltd.	Cu	222
DORE, POLLY	48° 124° N.E.	Four Square Exploration Ltd.	Cu, Mo	222
ALPHA, BETA, HILLCREST	48° 124° N.E.	Albeta Mines Ltd., Silver Standard Mines Ltd.	Cu, Fe	223
ANNE	48° 124° N.E.	Hibernia Mining Co. Ltd.	Cu, Mo, Au	223
CANDY	48° 124° N.E.	Four Square Exploration Ltd.	Cu	223
Duncan—				
LENORA, TYEE, RICHARD III	48° 123° N.W.	Mount Sicker Mines Ltd.	Cu	224
SIRIUS	48° 123° N.W.	CanPac Minerals Ltd.	Cu, Mo	224
Jordan River—				
SUNLOCH and GABBRO	48° 124° S.E.	Dison Development Ltd.	Cu	224
Sooke—				
KIRBY	48° 123° S.W.	Vanco Explorations Ltd.		225
OTTER	48° 123° S.W.	Vanco Explorations Ltd.	Cu	225
SOOKE COPPER	48° 123° S.W.	Giant Explorations Ltd.	Cu	225
T, ZZ	48° 123° S.W.	Citex Mines Ltd.	Cu	226
Kamloops Mining Division—				
Gosnell—				
WOLF, MAGNET, CATHY	52° 119° N.W.	Tournigan Mining Explorations Ltd.		228
Vavenby—				
CARIBOO	51° 119° N.E.	Robert Joseph Franks	Ag, Mn	228
TINKIRK	51° 119° N.W.	E. Kirk, Bill Tindill	Ag, Pb	228
BEARSDEN	51° 119° N.W.	Robert Joseph Franks	Ag, Au, Cu, Pb	228
BULLION	51° 119° N.W.	The Granby Mining Co. Ltd.	U	229
GOOF, SUE	51° 119° N.W.	Noranda Exploration Co., Ltd.	Cu, Zn	229
Birch Island—				
REXSPAR	51° 119° N.W.	Denison Mines Ltd.	U, rare earths, CaF_2, $SrSO_4$	229
FH	51° 119° N.W.	Royal Canadian Ventures Ltd.	Cu	230
Clearwater—				
SONJA	51° 120° N.E.	Robert Joseph Franks	Ag, Pb, Zn, Au, Cu	230
SUMMIT	51° 119° N.W.	Scurry-Rainbow Oil Ltd.	Ag, Cu, Pb, Zn	230
CL, OX	51° 120° N.E.	Anaconda American Brass Ltd.	Mo	230
SL	51° 120° N.E.	Anaconda American Brass Ltd.	Mo	231
Little Fort—				
MO	51° 120° N.E.	Falconbridge Nickel Mines Ltd.	Mo	231
PC	51° 120° N.E.	Anaconda American Brass Ltd.	Cu	231
HIDDEN CREEK	51° 120° S.E.	Howard Hansen	Au, Ag, Cu	232

REPORTS ON METAL MINES—*Continued*

Kamloops Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Barriere—				
WASH, SHAW	51° 120° S.E.	Texas Gulf Sulphur Co.	Cu	232
GH	51° 120° S.E.	Texas Gulf Sulphur Co.	Cu	232
BIRMOLY	51° 119° S.W.	Secondo Mining Ltd.	Mo	232
EBL	51° 119° S.W.	Royal Canadian Ventures Ltd.	Cu	233
RENNING, GRIZZLY, CU	51° 119° S.W.	Souvenir Mines Ltd.	Cu, Ag	233
BEX	51° 119° S.W.	Barriere Explorations Ltd.	Cu, Ni	233
JACK	51° 119° S.W.	Westbrun Exploration Ltd.	—	233
Adams Lake—				
HOMESTAKE	51° 119° S.W.	Kamad Silver Co. Ltd.	Ag, $BaSO_4$	234
MAX, HOPE	51° 119° S.W.	Sinmax Mines Ltd.	Ag, Pb, Zn, Cu, $BaSO_4$	234
Kamloops—				
AJS	50° 120° N.E.	Gunnex Ltd.	Mo, Cu	234
ROSE	50° 120° N.E.	Gunnex Ltd.	Mo	234
GOLD BUG	50° 120° N.E.	Mike Salk	Au, Ag, Pb, Zn, Mo, Cu	235
B & H	50° 120° N.E.	B. J. Hunter	Au, Ag, Cu	235
MAKAOO	50° 120° N.E.	Rolling Hills Copper Mines Ltd.	Cu	235
EVENING STAR, GOLDEN STAR	50° 120° N.E.	Kimberley Copper Mines Ltd.	Cu, Mo, Ag	235
RAINBOW	50° 120° N.E.	Belcarra Explorations Ltd.	Cu	236
KIMBERLEY	50° 120° N.E.	Phillips Petroleum Co.	Cu	236
IM	50° 120° N.E.	Royal Canadian Ventures Ltd.	Cu	236
ADMIRAL DEWEY, CYCLONE, ACE	50° 120° N.E.	Great Plains Development Co. of Canada Ltd.	Cu	236
J	50° 120° N.E.	Kal Resources Ltd.	Cu	237
C, PIN, ART	50° 120° N.E.	Union Miniere Explorations and Mining Corp. Ltd.	Cu, Ag	237
AFTON	50° 120° N.W.	C. F. Millar Ltd.	Cu	237
YR	50° 120° N.W.	Tupco Mines Ltd.	Cu	238
NED	50° 120° N.W.	E. O. Chisholm	Cu	238
TC, SPUR, JC	50° 120° N.W.	Tro-Buttle Exploration Ltd.	Mo	238
KL	50° 120° N.W.	Royal Canadian Ventures Ltd.		238
FS, SAGE, OK	50° 120° N.W.	Royal Canadian Ventures Ltd.	Cu	239
Falkland—				
BJ	50° 119° S.E.	Coin Canyon Mines Ltd.	Au, Zn	239
EIN	50° 119° S.E.	Noranda Exploration Co., Ltd.	Cu	239
Shuswap Lake—				
BLUENOSE, KAL, CYE	50° 119° N.E.	Tranquility Explorations Ltd		239
LOBO, BONNIE BRAE, JOHN	50° 119° N.E.	Annmar Mining Ltd.	Ag, Cu, Au	240
Savona—				
MERC	50° 120° N.W.	Savanna Creek Gas & Oil Ltd.	Hg	240
LES, CHES, DE	50° 120° N.W.	Criss Creek Mines Ltd.	Cu, Mo, Ag, Pb, Zn	240
Bonaparte River—				
MAGGIE MINE	50° 121° N.E.	Bethlehem Copper Corporation Ltd.	Cu, Mo	241
CM	50° 121° N.E.	Grandora Explorations Ltd.	Cu	241
Lytton—				
T, FIL	50° 121° S.E.	Dryad Mines Ltd.	Cu	241
ROCKY, TOM, NAV	50° 121° S.E.	Lytton Minerals Ltd.	Cu	241
MOLLY B	50° 121° S.E.	Burlington Mines Ltd.	Cu	242
Nesikep Creek—				
MUD, CHERRY, RICKHILL, SHARON	50° 121° N.W.	Dalex Mines Ltd.	Cu, Ag, Mo	242
Highland Valley—				
ACB, PRICE, CN	50° 120° S.W.	Oro Mines Ltd.	Cu	242
ALAMO, SAN JOSE	50° 120° S.W., 50° 121° S.E.	D. A. Chapman and Associates Ltd.		242
AM, IDE, PEN (Highmont)	50° 120° S.W., 50° 121° S.E.	Highmont Mining Corp. Ltd.	Cu, Mo	244
AM, IDE, VM (Minex)	50° 120° S.W.	Canadian Superior Exploration Ltd.	Cu, Mo	244
ANN	50° 120° S.W.	Trojan Consolidated Mines Ltd.	Cu	244
AYE	50° 121° S.E.	Darkhawk Mines Ltd.	Cu, Mo	245
BC	50° 121° N.E.	Croydon Mines Ltd.	Cu	245
BETHLEHEM MINE	50° 120° S.W.	Bethlehem Copper Corporation Ltd.	Cu	245
BIN (Cominco option)	50° 121° S.E.	Cominco Ltd.		246
BIN, DDH	50° 121° S.E.	Cominco Ltd.	Cu	248
BIN (Noranda option)	50° 121° S.E.	Noranda Exploration Co., Ltd.		248
BIN (Phelps Dodge option)	50° 121° S.E.	Phelps Dodge Corporation of Canada, Ltd.		249
BURL	50° 120° N.W.	Burlington Mines Ltd.		249
CHALCO	50° 121° N.E.	Troy Silver Mines Ltd.	Cu	249
CRIS, JAE, LF, BO	50° 121° S.E.	Izumi Metal Mining Co. Ltd.	Cu	250
DAB, HJ, RM, JT	50° 120° N.W.	Alwin Mining Co. Ltd.		250

REPORTS ON METAL MINES—*Continued*

Kamloops Mining Division—*Continued*

Highland Valley—*Continued*

	Latitude and Longitude	Operator	Metals	Page
DANSEY	50° 120° N.W.	Noranda Exploration Co., Ltd.	Cu	250
DEN	50° 121° N.E.	Bethlehem Copper Corporation Ltd.	Cu	251
ED	50° 121° N.E.	Rolling Hills Copper Mines Ltd.		251
EDEN, EZRA, JOB, CL	50° 120° N.W.	Vananda Explorations Ltd., New Indian Mines Ltd.		251
ELLA	50° 120° N.W.	Highland Valley Mines Ltd.	Cu	252
EZZ	50° 121° N.E.	Alwin Mining Co. Ltd.		252
GA	50° 120° N.W.	Lornex Mining Corporation Ltd.		252
GAZA, JERICHO	50° 120° S.W.	Tremar Minerals Ltd.	Cu	253
GC	50° 121° N.E.	Albert A. Ablett		253
GO, DO, LE	50° 121° N.E., 50° 120° N.W.	Noranda Exploration Co., Ltd.		253
HIGH	50° 120° N.W.	Phelps Dodge Corporation of Canada, Ltd.		254
HIGHPOINT	50° 121° S.E.	Anaconda American Brass Ltd.		254
HUB	50° 121° N.E.	Westview Mining Co. Ltd.		254
JACK	50° 121° N.E.	Noranda Exploration Co., Ltd.		255
JAN	50° 121° S.E.	McIntyre Porcupine Mines Ltd.	Cu	255
JEAN, LUX, FORGE	50° 120° N.W.	Kalco Valley Mines Ltd.		255
JERICHO, MAE, HATCH	50° 120° S.W.	J. Meikle		256
JOE	50° 121° N.E.	Trumpeter Mines Ltd.		256
JOE, BET	50° 120° S.W.	Highland Valley Mines Ltd.	Cu	256
JOE, BLU, JO, JACK	50° 121° N.E.	Continental Cinch Mines Ltd.	Cu	256
JONN, BRENNAN	50° 121° S.E.	Mollie Mac Mines Ltd.	Cu	257
JT, TH, LD	50° 121° S.E.	Cominco Ltd.		257
JUDY	50° 120° N.W., S.W.	Newmine Development Ltd.		258
K	50° 121° N.E.	Bethlehem Copper Corporation Ltd.	Cu	258
KEY, MB	50° 121° S.E.	Pyramid Mining Co. Ltd.	Cu, Mo	258
KRAIN	50° 121° N.E., 50° 120° N.W.	Noranda Exploration Co., Ltd.	Cu	259
KR&K	50° 120° S.W.	Nicola Copper Mines Ltd.		259
LAKE	50° 121° S.E.	Bethlehem Copper Corporation Ltd.	Cu	259
LORNA, MARS, DAM, ZEN, MAT	50° 121° S.E.	Zenith Mining Corporation Ltd.	Cu	260
LORNEX	50° 121° S.E.	Lornex Mining Corporation Ltd.	Cu, Mo	260
MARS	50° 121° N.E.	Pechiney Development Ltd.		260
MEL	50° 121° S.E.	Bomarc Mining Co. Ltd.		261
MM	50° 120° N.W., 50° 121° N.E.	Valley Forge Mining Ltd.	Cu	261
NEL	50° 121° N.E.	Canwex Explorations Ltd.		261
NIM	50° 121° N.E.	New Indian Mines Ltd.		262
OK (ALWIN)	50° 121° S.E.	Alwin Mining Co. Ltd.	Cu, Ag	262
PRICE	50° 120° S.W.	Pathfinder Uranium & Nickel Mines Ltd.		263
PYRITE, MAY	50° 121° N.E.	Placid Oil Co.	Cu	263
ROYAL, RC, CANA	50° 121° S.E.	Great Plains Development Company of Canada, Ltd.		263
SHEBA	50° 120° S.W.	Anaconda American Brass Ltd.	Cu, Mo	264
SPA, SKAT, JEFF, SKU	50° 120° S.W.	Canex Aerial Exploration Ltd.	Cu	264
TAM, KAM, JAC, RAF	50° 121° N.E.	Cleveland Mining & Smelting Co. Ltd.	Cu	264
TAR	50° 121° S.E.	Highland Valley Mines Ltd.	Cu	265
TIP	50° 121° N.E.	Great Northern Petroleums & Mines Ltd.		265
TN	50° 121° S.E.	Croydon Mines Ltd.	Cu	266
TROJAN	50° 120° N.W.	Pechiney Development Ltd.		266
VALLEY	50° 121° S.E.	Cominco Ltd.	Cu	266
VERA, DIA	50° 121° N.E.	Lornex Mining Corporation Ltd.	Cu, Mo	267
VW, AX, LATE	50° 121° N.E.	J. McPhee and M. Kangro		267
WAY	50° 120° N.W.	Spartan Explorations Ltd.		268
WJ	50° 120° N.W.	Laura Mines Ltd.	Cu	268
X-Y	50° 120° N.W., S.W.	Comet Krain Mining Corp. Ltd.		269

Nicola Mining Division—

Highland Valley Area—

	Latitude and Longitude	Operator	Metals	Page
ABERDEEN	50° 120° S.W.	Torwest Resources (1962) Ltd.	Cu	269
SUNSHINE, LO, LEE	50° 120° S.W.	Highland Lode Mines Ltd.	Zn, Pb, Cu, Ag	269
LEE	50° 120° S.W.	R. McBean, Mamit Lake Mining Ltd.	Cu	270

Merritt—

	Latitude and Longitude	Operator	Metals	Page
OK, DONNY, AL, MAD ARAB	50° 120° S.W.	Cambridge Mines, Ltd.	Cu	270
ALAMEADA	50° 120° S.W.	Zulco Explorations Ltd.		270
REB	50° 120° S.W.	Silver Standard Mines Ltd.	Cu	271
COKE	50° 120° S.W.	Noranda Exploration Co., Ltd.	Cu	271
FIR	50° 120° S.W.	Fort Reliance Minerals Ltd.		271

Reports on Metal Mines—*Continued*

Nicola Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Merritt—*Continued*				
CRAIGMONT MINE	50° 120° S.W.	Craigmont Mines Ltd.	Cu	271
ETTA, PEG, JUGS	50° 120° S.W.	Noranda Exploration Co., Ltd.	Cu	272
MARB	50° 120° S.W., 50° 121° S.E.	Torwest Resources (1962) Ltd.	Cu	272
TOM	50° 120° S.E.	Peel Resources Ltd.	Cu	273
PRIDE, SID, RAM	50° 120° S.W.	London Pride Silver Mines Ltd.		273
COPPER CANYON, EAGLE, SOS	50° 121° S.E.	New Cinch Uranium Ltd.	Cu	273
BOY, CHATKO	50° 120° S.W.	Iiyama Mines Ltd.	Cu	273
CW, NW	50° 120° S.E.	Craigmont Mines Ltd.	Cu	274
MINT	50° 120° S.W.	Bethlehem Copper Corporation Ltd.	Cu	274
CM	49° 120° N.W.	Vananda Explorations Ltd.	Cu	274
Stump Lake—				
KING WILLIAM, ENTERPRISE, TUBAL CAIN	50° 120° S.E.	Copper Hill Mining and Exploration Ltd.	Au, Ag, Pb, Zn	275
ACE	50° 120° S.E.	Aarn Explorations & Development Co. Ltd.	Au, Ag, Zn	275
DL	50° 120° S.E.	Royal Canadian Ventures Ltd.		275
Douglas Lake—				
RANCHER, PEPSI, OUT	50° 120° S.E.	Noranda Exploration Co., Ltd.		275
Aspen Grove—				
DOTE	49° 120° N.W.	Dawood Mines Ltd.	Cu, Mo	276
BAT, TAB	49° 120° N.W.	Norranco Mining & Refining Co. Ltd.	Cu	276
HALO	49° 120° N.W.	Norranco Mining & Refining Co. Ltd.	Cu, Ag	276
HH, MIX	49° 120° N.W.	Aspen Grove Mines Ltd.	Cu	276
TOE, BOOT, MALACHITE	49° 120° N.E.	Consolidated Skeena Mines Ltd.	Cu, Mo	277
AMALG	49° 120° N.W.	F. R. Burton		277
Coquihalla Lake—				
MAG	49° 121° N.E.	Noranda Exploration Co., Ltd.	Ag, Cu, Pb, Zn, Au	277
Brenda Lake—				
KIP (SLIM)	49° 120° N.E.	Largo Mines Ltd.	Cu	278
KOM	49° 120° N.E.	Largo Mines Ltd.	Cu	278
Similkameen Mining Division—				
Allison Lake—				
PINE, REG, DY	49° 120° N.W.	Blue Gulch Explorations Ltd.	Cu	278
Summers Creek—				
ESTHER, LEM	49° 120° N.W.	Delkirk Mining Ltd.	Cu	278
OD, OB, OC	49° 120° N.E.	Primer Group Minerals Ltd.	Cu, Au, Ag	279
ROADBLOCK	49° 120° N.W.	E. O. Chisholm	Cu	279
AXE, BUD, BOL	49° 120° N.W.	Amax Exploration, Inc.	Cu	279
ELN	49° 120° N.E.	Canwex Explorations Ltd.	Cu	280
DOT	49° 120° N.W.	Anaconda American Brass Ltd.		280
Hayes Creek—				
TOP, FIX	49° 120° N.E.	Quality Exploration Corporation	Ag, Zn, Pb, Cu	280
MABEL	49° 120° N.E.	Quality Exploration Corporation	Cu, Pb, Zn, Ag	280
EMPRESS	49° 120° N.E.	Anaconda American Brass Ltd.	Mo	281
Tulameen River—				
IRA, IR	49° 120° N.W.	Copper Range Exploration Co., Inc.	Cu, Mo	281
CATHY	49° 120° N.W.	Consteel Explorations Ltd.		281
HG, IRON, DB, EV	49° 120° S.W.	Imperial Metals and Power Ltd.	Fe	282
ASH	49° 120° S.W.	Copper Range Exploration Co., Inc.	Mo, Cu	282
GRANITE SCHEELITE	49° 120° S.W.	Silver Tip Explorations Ltd.	Au, Ag, Cu, Zn, W	282
Princeton—				
TUL	49° 120° S.W.	Anaconda American Brass Ltd.		282
WILMAC	49° 120° S.W.	Can West Investments Ltd.		283
RAY	49° 120° S.W.	Tri Valley Exploration Ltd.	Cu	283
INGERBELLE	49° 120° S.W.	Ingerbelle Mines Ltd.	Cu (Mo, Au)	283
COPPER MOUNTAIN MINE	49° 120° S.W.	Similkameen Mining Co. Ltd.	Cu (Mo, Au)	283
T	49° 120° S.W.	Anchor Mines Ltd.	Cu	287
AXE	49° 120° S.W.	Noranda Exploration Co., Ltd		287
JILL, TOW, JJJ	49° 120° S.W.	Scurry-Rainbow Oil Ltd.	Cu	287
NEV	49° 120° S.W.	Grandora Explorations Ltd.		288
ILK, ELK, FRI, PR	49° 120° S.W.	Noranda Exploration Co., Ltd.	Cu (Mo)	288
MONEY	49° 120° S.W.	W. Davidson, A. Moyes-Wann		288
OX	49° 120° S.W.	Kechika Mines Ltd.	Cu	289
SOB	49° 120° S.E.	Aurus Mining Ltd.		289
ILSE	49° 120° S.E.	Aurus Mining Ltd.		289
WHIP, SAW, PICK	49° 120° S.W.	Texas Gulf Sulphur Co.	Cu, Mo	289
MJ	49° 120° S.W.	Michael E. Jorgenson		290
SILVERTIP	49° 120° S.W.	Silver Tip Explorations Ltd.	Cu, Zn, Ag	290
RED STAR	49° 120° S.W.	Spenho Mines Ltd., Spencer H. Davis	Cu, Zn, Ag	290

REPORTS ON METAL MINES—*Continued*

	Latitude and Longitude	Operator	Metals	Page
Osoyoos Mining Division—				
Brenda Lake—				
DAN	49° 119° N.W.	Canadian Supervior Exploration Ltd.	Cu	291
BRENDA MINE	49° 120° N.E.	Brenda Mines Ltd.	Cu, Mo	292
DONA	49° 119° N.W.	Bonnet Mines Ltd.		293
Peachland—				
SID, KC	49° 119° N.W.	Brendako Mines Ltd.	Cu, Mo	293
CACHE	49° 119° N.W.	Koporok Mines Ltd.	Cu, Ag	293
GLAD	49° 119° N.W.	Koporok Mines Ltd.	Cu, Ag	293
Summerland—				
REX, RONDA	49° 120° N.E.	Cairn Mines Ltd.		294
Okanagan Falls—				
BEV, LLOYD, DEN	49° 119° S.E., S.W.	Dusty Chief Mines Ltd.	Au, Ag	294
DUSTY MAC	49° 119° S.W.	Noranda Exploration Co., Ltd.	Au, Ag	294
SOO	49° 119° S.E.	Action Explorations Ltd.		296
Keremeos—				
GOLCONDA	49° 119° S.W.	Trent Resources Ltd.	Cu, Mo	297
BOOT	49° 119° S.W.	G. H. Haddrell	Cu, Ag, Ni	297
HORN SILVER MINE	49° 119° S.W.	Utica Mines Ltd.		297
Osoyoos—				
PEN, AXE, JOE	49° 119° S.W.	Multiple Mining Ltd.	Cu	298
Vernon Mining Division—				
Mabel Lake—				
BRIGHT STAR	50° 118° N.W.	Bright Star Trio Mining Ltd.	Zn, Pb, Cu, Ag	298
Vernon—				
DCK	50° 119° S.E.	King Graybarr Mines Ltd.	Cu, Au, Ag, Pb, Zn, Mo	298
CHAPUT	50° 118° S.W.	F. K. Explorations Ltd.	Ag, Pb, Zn	298
Okanagan Lake—				
SPIKE	49° 119° N.W.	Dawood Mines Ltd.	Au, Ag	299
HUGAL, HUD	50° 119° S.E.	Hudson Bay Exploration & Development Co. Ltd.	Cu	299
Whiterocks Mountain—				
NIGHT OWL	50° 119° S.W.	Texas Gulf Sulphur Co.	Cu, Mo	299
BEAR	50° 119° S.W., 49° 119° N.W.	Atlas Explorations Ltd.	Cu, Mo	300
Jubilee Mountain—				
SS, PANE, FERN	49° 118° N.W.	Copper Hill Mining and Exploration Co. Ltd.	Cu, Mo	300
Lightning Peak—				
WATERLOO No. 3	49° 118° N.E., N.W.	International Mine Services Ltd.	Ag, Pb, Zn	300
Greenwood Mining Division—				
Beaverdell—				
HIGHLAND BELL MINE	49° 119° S.E.	Teck Corporation Ltd.	Ag, Pb, Zn	301
RAMBLER	49° 119° S.E.	Ajax Mercury Mines Ltd.	Ag	301
WELLINGTON	49° 119° S.E.	Silver-Lee Mines Ltd.	Ag, Pb, Zn	301
ROCCO PLATA, VAN	49° 119° S.E.	Red Rock Mines Ltd.		302
ROB	49° 118° S.W.	Burnex Exploration Ltd.	Cu	302
FUKI	49° 118° N.W.	Power Reactor and Nuclear Fuel Development Corp.	U	302
Rock Creek—				
RAY	49° 119° S.E.	Rayore Mines Ltd.	Ni, Cu	303
Kettle River—				
LOU	49° 118° S.W.	Rip Van Mining Ltd.	Cu	303
Midway—				
G-TO	49° 118° S.W.	Texas Gulf Sulphur Co.	Cu	303
MIDWAY	49° 118° S.W.	D. Moore	Au, Ag, Pb, Zn	304
Greenwood—				
AMANDY	49° 118° S.W.	J. A. Millican	Au, Ag, Pb	304
LINDA, BG	49° 118° S.W.	Mrs. R. E. Hoehn	Cu	304
COMBINATION	49° 118° S.W.	E. D. Campbell	Ag, Pb	305
MARSHALL	49° 118° S.W.	San Jacinto Explorations Ltd.	Cu, Au	305
PHOENIX MINE	49° 118° S.W.	The Granby Mining Co. Ltd.	Cu, Au, Ag	305
ORO DENORO	49° 118° S.W.	West Coast Resources Ltd.	Cu	306
STAN, ROCKLAND	49° 118° S.W.	King Resources Co.	Cu, Mo	306
SKYLARK, LAST CHANCE	49° 118° S.W.	Sarco Investments Ltd.		306
MOTHER LODE, GREYHOUND	49° 118° S.W.	Aabro Mining & Oils Ltd.	Cu, Au, Ag	307
BUTCHER BOY	49° 118° S.W.	Occatilla Exploration Co. Ltd.	Cu, Ag, Au	307
TAM O SHANTER	49° 118° S.W.	Crownex International Ltd., Silver Dome Mines Ltd.	Cu	307

REPORTS ON METAL MINES—*Continued*

Greenwood Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Greenwood—*Continued*				
CROESUS, JOHANNESBURG	49° 118° S.W.	Ortega Minerals Ltd.		308
COLLEEN	49° 118° S.W.	Rayore Mines Ltd.	Cu	308
No. 7	49° 118° S.W.	McArthur and Son	Au, Ag	308
LEXINGTON	49° 118° S.W.	Lexington Mines Ltd.	Cu, Au, Ag	308
Grand Forks—				
BVPK	49° 118° S.W.	Consul Mines Ltd.	Cu, Mo, Au, Ag	309
BULLER	49° 118° S.W.	The Granby Mining Co. Ltd.		309
SEATTLE	49° 118° S.E.	Ryslo Silver Mines Ltd.	Cu	309
COPPER No. 2	49° 118° N.E.	Newmont Mining Corporation of Canada Ltd.		310
IXL	49° 118° N.E.	Newmont Mining Corporation of Canada Ltd.	Au, Ag, Cu	310
Christina Lake—				
MT. VIEW, PEER	49° 118° S.E.	Rover Mines Ltd.	Ag, Pb, Zn, Au	310
AJAX, BURNT BASIN	49° 118° S.E.	Dalex Mines Ltd.	Cu, Pb, Zn, Au, Ag, Pt, Pd, Cd	311
HERB	49° 118° S.E.	Brycon Explorations Ltd.	Cu, Mo	311
MASTODON	49° 118° S.E.	Hunter Point Exploration Ltd.	Ni, Cr	311
Trail Creek Mining Division—				
Rossland—				
COXEY MINE	49° 117° S.W.	Red Mountain Mines Ltd.	Mo	314
LE ROI, NICKEL PLATE	49° 117° S.W.	Falaise Lake Mines Ltd.	Au, Ag, Cu	314
MIDNIGHT	49° 117° S.W.	Cinola Mines Ltd.	Au, Ag, Pb, Zn	314
RICH, MEL, KAY, ELI	49° 117° S.W.	Michael Delich, Salem Mines Ltd.		315
BLUEBIRD, PHOENIX	49° 117° S.W.	Rossland Mining Co. Ltd.	Au, Ag, Pb, Zn	315
SUNSET	49° 117° S.W.	Lake Kozak Mines Ltd.	Ag, Pb, Zn	316
Nelson Mining Division—				
Nelson—				
EUREKA	49° 117° S.E.	Copper Ridge Mines Ltd.	Au, Ag, Cu	316
Ymir—				
FRESNO, FRESNU	49° 117° S.E.	Copper Horn Mining Ltd.	Mo, Au, Ag	316
HOWARD	49° 117° S.E.	John Stoochnoff, J. Hutton, George Windsor	Au, Ag, Pb, Zn	316
Salmo—				
SILVER DOLLAR	49° 117° S.E.	D. Norcross	Au, Ag, Pb, Zn	317
CURLETT	49° 117° S.E.	Perry Creek Mines Ltd.	Mo	317
Erie Creek—				
NEW ARLINGTON	49° 117° S.E.	G. D. Fox and Associates	Au, SiO_2	318
TRIXIE V	49° 117° S.E.	Carl Wilson, Leonard Bradley	Au, SiO_2	318
HATTIE	49° 117° S.E.	McIntyre Porcupine Mines Ltd.	Mo, Cu	318
RAND	49° 117° S.E.	Calmark Explorations Ltd.	Au	319
Iron Mountain—				
JERSEY MINE	49° 117° S.E.	Canadian Exploration Ltd.	Pb, Zn	319
INVINCIBLE	49° 117° S.E.	Canadian Exploration Ltd.	W	319
Lost Creek—				
OTTER	49° 117° S.E.	Canex Aerial Exploration Ltd.	Mo, W, Pb, Zn	320
Remac—				
REEVES MACDONALD MINE	49° 117° S.E.	Reeves MacDonald Mines Ltd.	Pb, Zn	320
ANNEX	49° 117° S.E.	Reeves MacDonald Mines Ltd.	Pb, Zn	320
BAR	49° 117° S.E.	Cominco Ltd.	Pb, Zn, Ag	321
Creston—				
TOPAZ	49° 116° S.W.	Magog Mining Co. Ltd.	Cu, Ni, Co, Ag, Pb, Zn	321
OTTO SILVER	49° 116° S.E.	Melvin Hinkel and Associates	Ag, Pb	322
LEADVILLE	49° 116° S.E.	F. J. Brady	Ag, Pb, Zn	322
LIZ B	49° 116° S.W.	Aspen Grove Mines Ltd.	Ag, Pb, Zn	322
Slocan Mining Division—				
Inonoaklin Creek—				
DIXIE	49° 118° N.E., 50° 118° S.E.	South Oak Mines Ltd.		323
Burton—				
MILLIE MACK	50° 117° S.W.	Richwood Silver Mines Ltd.	Au, Ag, Pb, Zn	323
Springer Creek—				
PORT HOPE	49° 117° N.E.	Red Metal Mines Ltd.	Au, Ag	323
OTTAWA	49° 117° N.E.	Pamicon Developments Ltd.	Ag	324
ARLINGTON	49° 117° N.E.	Arlington Silver Mines Ltd.	Ag, Pb, Zn	324
LITTLE TIM	49° 117° N.E.	Moly-Win Mining Ltd.	Ag, Pb	324
Memphis Creek—				
HOMESTAKE	49° 117° N.E.	C. Thickett and Associates	Au, Ag	325
COLORADO	49° 117° N.E.	Hyperion Silver Mines Ltd.	Ag, Pb, Zn	325

Reports on Metal Mines—*Continued*

Slocan Mining Division—*Continued*	Latitude and Longitude	Operator	Metals	Page
Enterprise Creek—				
ENTERPRISE	49° 117° N.E.	Enterprise Silver Mines Ltd.	Ag, Pb, Zn	325
WESTMONT	49° 117° N.E.	Eastmont Silver Mines Ltd.	Ag, Pb, Zn	326
Silverton—				
GALENA FARM	49° 117° N.E.	Larch Mining Ltd.	Ag, Pb, Zn	326
FREDDY	49° 117° N.E.	V. Hansen	Ag, Pb, Zn	326
HEWITT	49° 117° N.E.	Frank Pho	Ag, Pb, Zn	326
BOSUN	49° 117° N.E.	Larch Mining Ltd.	Ag, Pb, Zn	327
STANDARD	49° 117° N.E.	Panoil Canadian Minerals Associates	Ag, Pb, Zn	327
Sandon—				
SILVER BELL	49° 117° N.E.	John Nesbitt	Ag, Pb, Zn	327
LEI	49° 117° N.E.	T. D. Wilkinson	Ag, Pb, Zn	328
SILMONAC (MINNIEHAHA)	49° 117° N.E.	Kam-Kotia Mines Ltd., Burkam Mines Ltd.	Ag, Pb, Zn	328
VICTOR	49° 117° N.E.	E. H. Petersen, E. Perepolkin	Ag, Pb, Zn	328
CONDUCTOR	49° 117° N.E.	Northern Lights Minerals Ltd.	Ag, Pb, Zn	329
SLOCAN SOVEREIGN	49° 117° N.E.	Cody Milling & Smelting Ltd.	Ag, Pb, Zn	329
RECO, BLUEBIRD	49° 117° N.E.	Reco Silver Mines Ltd.	Ag, Pb, Zn	329
MADISON	49° 117° N.E.	Black Cricket Mines Ltd.	Ag, Pb, Zn	329
Retallack-Three Forks—				
McALLISTER	50° 117° S.E.	Liberty Mines Ltd.	Ag	330
JO JO	50° 117° S.E.	Cairn Mines Ltd.	Ag, Pb	330
WASHINGTON	50° 117° S.E.	Red Deer Valley Coal Co. Ltd.	Ag, Pb, Zn	330
PANAMA	50° 117° S.E.	Vimy Explorations Ltd.	Ag	331
ANTOINE	50° 117° S.E.	Antoine Silver Mines Ltd.	Ag, Pb, Zn	331
COWBOY, TEXAS, FOURTH OF JULY	50° 117° S.E.	Silver Chalice Mines	Ag, Pb, Zn	331
DUBLIN QUEEN	50° 117° S.E.	Iskut Silver Mines Ltd.	Ag, Pb, Zn	332
KAT	50° 117° S.E.	D. W. Smellie		332
Kaslo River—				
HECLA	50° 117° S.E.	Senate Mining and Exploration Ltd.	Ag, Pb	332
Keen Creek—				
ANDEX	49° 117° N.E.	Andex Mines Ltd.	Ag, Pb, Zn	333
Woodbury Creek—				
SCRANTON	49° 117° N.E.	Silver Star Mines Ltd.	Au, Ag, Pb, Zn	333
Ainsworth—				
SILVER HOARD	49° 116° N.W.	S. L. McLellan	Ag, Pb, Zn	333
SKYLINE	49° 116° N.W.	W. E. Lane and Associates	Ag, Pb, Zn	334
GREENACRES	49° 116° N.W.	Multiple Mining Ltd.	Ag, Pb, Zn	334
BELLE AIRE	49° 116° N.W.	Grenmac Silver Mines Ltd.	Ag, Pb, Zn	334
Lardeau—				
MOONSHINE	50° 116° S.W.	Dennis Holdings Ltd.	Ag, Pb, Zn	335
Duncan River—				
BRUCE	50° 116° S.W.	Boundary Exploratoin Ltd.	Ag, Pb, Zn	335
EASY M	50° 116° S.W.	John Madison	Pb, Zn	335
FOG	50° 116° S.W.	King Resources Co.	Pb, Zn, Ag, Cu	336
PRESIDENT, HAUSER	50° 116° S.W.	Boundary Exploration Ltd.	Ag, Pb, Zn	336
FARSIDE	50° 117° N.E.	Bryant Mines Ltd.	Ag, Pb, Mo	336
Riondel—				
BLUEBELL MINE	49° 116° N.W.	Cominco Ltd.	Ag, Pb, Zn	337
Crawford Creek—				
HUMBOLT	49° 116° N.W.	Rose Pass Mines Ltd.	Ag, Pb, Zn	337
Revelstoke Mining Division—				
Perry River—				
RIP	51° 118° S.W.	Rip Van Mining Ltd.	Mo	337
Revelstoke—				
MOUNT COPELAND MINE (KNOX)	51° 118° S.E.	KRC Operators Ltd.	Mo	338
VICTOR	50° 118° N.E.	Consolidated Gem Explorations Ltd.		338
NIN	50° 118° N.E.	W. J. Worrall		339
STANNITE	51° 117° S.W.	Stannex Minerals Ltd.	Ag, Pb, Zn	339
WIGWAM	50° 117° N.W.	Canex Aerial Exploration Ltd.	Pb, Zn	339
North Lardeau—				
LB (LUCKY BOY)	50° 117° N.W.	Cascade Molybdenum Mines Ltd.		340
TRUE FISSURE	50° 117° N.E.	Columbia Metals Corporation, Ltd.	Ag, Pb, Zn	341
SILVER CUP	50° 117° N.E.	Silver Dawn Mines Ltd.	Ag, Pb, Zn	341

REPORTS ON METAL MINES—*Continued*

	Latitude and Longitude	Operator	Metals	Page
Golden Mining Division—				
Spillimacheen—				
ATLANTA, HORSESHOE, MOUNTAIN DAISEY	50° 116° N.E.	Calix Mines Ltd.	Ag, Pb, Cu	341
RUTH VERMONT	50° 116° N.W.	Copperline Mines Ltd.	Ag, Pb, Zn	342
ADR	50° 116° N.W.	Medesto Exploration Ltd.	Ag, Pb	342
Bugaboo Creek—				
SILVER BASIN	50° 116° N.W.	Purcell Development Co. Ltd.	Ag, Pb, Zn	342
Horsethief Creek—				
COPPER KING, IMPERIAL	50° 116° S.E.	Jumbo Mines Ltd.	Cu, Ag, Pb, Zn, Au	343
RAD	50° 116° S.E.	Medesto Exploration Ltd.	Ag, Pb, Cu	343
Toby Creek—				
MELODY	50° 116 S.E.	Consolidated New Pacific Ltd., North Canadian Oils Ltd.	Ag, Pb, Zn	343
Dutch Creek—				
DUTCHY	50° 116° S.E.	Cominco Ltd., Yornoc Mining Co. Ltd.	Cu	344
YORNOC	50° 116° S.E.	Dresser Industries, Inc.	Pb, Ag, $BaSO_4$	344
Fort Steele Mining Division—				
Skookumchuck—				
MOLLY	49° 116° N.E.	Cominco Ltd.	W, Mo	344
PRE	49° 115° N.W.	Cominco Ltd.		344
Kimberley—				
SULLIVAN MINE	49° 116° N.E.	Cominco Ltd.	Ag, Pb, Zn	345
KIM	49° 115° N.W.	Imperial Oil Enterprises Ltd.		346
St. Mary River—				
WARHORSE	49° 116° N.E.	St. Mary's Mines Ltd.	Ag, Pb, Zn	346
Moyie—				
DAISY	49° 115° S.W.	Mercury Explorations Ltd.		346
CARIBOO	49° 116° S.E.	John McLellan	W, Pb, Zn	347
Fort Steele—				
VICTOR	49° 115° N.E.	Victor Mining Corporation Ltd.	Ag, Pb	347
DIBBLE	49° 115° N.E.	Imperial Oil Enterprises Ltd.	Cu, Ag	348
Bull River—				
ALKI	49° 115° N.E.	Cominco Ltd.		348
BIG BONANZA	49° 115° N.E.	Placid Oil Co.	Ag, Pb, Zn, Cu	348
Jaffray—				
JAF	49° 115° S.E.	Cominco Ltd.		348

GEOLOGICAL, GEOPHYSICAL, AND GEOCHEMICAL REPORTS 349

TABLE 12.—METAL PRODUCTION, 1969 426

LIST OF ILLUSTRATIONS

PHOTOGRAPHS

PLATE PAGE
I. Phases of the Mount Leonard pluton on the Adanac property 31
IIA. Looking northward down Eagle Creek toward its junction with Yehde Creek 52
IIB. Davis-Keays camp on Eagle Creek 52
IIIA. Granduc mine, general view of the portal area and new concentrator 55
IIIB. Granduc mine, powerhouse and new concentrator 55
IVA. Giant accretionary lapilli from a dacitic pyroclastic unit north of Denys Creek, Dominion Basin 90
IVB. Pillow-like structures in epidotized vesicular basalt near the headwaters of Denys Creek, Dominion Basin 90
VA. Rhyodacite ash flow bed containing a collapsed pumice fragrent (fiamme), near the head of Denys Creek, Dominion Basin 125
VB. Owen Lake area, dacitic andesite volcanic breccia near Cole Lake 125
VIA. Tertiary aquagene tuff from the east fork of Riddeck Creek canyon 128
VIB. Tubular growth of manganese oxide in a vein-cap deposit, vein No. 2, south of Wrinch Creek canyon 128
VIIA. Bladed feldspar-porphyry dyke rock, 1½ miles southwest of the Kennco camp-site 144
VIIB. Weakly banded rhyodacite, dark areas consist of very fine-grained pyrite, chalcopyrite, and tetrahedrite 144
VIIIA. Dragfolded quartz-muscovite schist from the Sunset shear zone 169
VIIIB. Dragfolded gneissic quartz diorite injected by vein quartz, from the south slope of the summit area 169
IXA. Pyrite disseminated through gneissic quartz diorite adjacent to Sunset shear zone 170
IXB. Pyrite and chalcopyrite in transecting fractures in typical quartz diorite from Gibraltar East zone 170
XA. Exploration drilling by Bethlehem Copper Corporation Ltd. on the Valley ore zone 247
XB. The start of mining operations in the Brenda open pit 247

DRAWINGS

FIG.
2. Index map showing mining divisions and outlines (in red) of Figures 3, 8, 9, 13, 31, 33, 34, and 41 24
3. Index map showing mineral properties in the Atlin Mining Division 27
4. Adanac Mining and Exploration Ltd., geology of Adera claims Facing 29
5. Adanac Mining and Exploration Ltd., mineral composition of alaskite phases on the Adera claims 30
6. Adanac Mining and Exploration Ltd., longitudinal sections, Adera claims Facing 33
7. Adanac Mining and Exploration Ltd., lower hemisphere stereo-projection of poles to veins and joints, Ruby Creek mineral showings 35
8. Index map showing mineral properties in the Liard and part of the Atlin Mining Divisions Facing 39
9. Index map showing mineral properties in the Skeena Mining Division Facing 53
10. Tiger group, plan of No. 1 and No. 3 adits 61
11. Lori Explorations Ltd., plan of underground workings on the Esperanza (based in part on company plans) 65
12. Lori Explorations Ltd., plan of underground workings on the Alice (based in part on company plans) 66
13. Index map showing mineral properties in the Omineca Mining Division Facing 75
14. Geology of the DOM group, Falconbridge Nickel Mines Limited Facing 87
15. DOM group, frequency distribution of Hazelton volcanic rocks in Dominion Basin 87
16. DOM group, equal area plot of beds and fractures 89
17. Ox Lake geological map Facing 93
18. Ox group, vertical cross-sections along lines of section shown on Figure 17 94

DRAWINGS—*Continued*

FIG. PAGE
19. Geology of the CAVZ group, Trail Peak .... Facing 111
20. Tachi group, geology of the Tachi claims 116
21. Geology of the Owen Lake area .... Facing 123
22. Frequency distribution of volcanic rocks in the Owen Lake area 123
23. Nadina Explorations Limited, Wrinch vein system .... Facing 127
24. Nadina Explorations Limited, Portal vein system .... Facing 129
25. Nadina Explorations Limited, Chisholm vein system 131
26. Nadina Explorations Limited, plot of fractures, Mine Hill area 134
27. Nadina Explorations Limited, equal area diagram of slickenside attitudes, Mine Hill area 135
28. Frontier Exploration Limited, Cole vein system 140
29. Geological map of Goosly Lake area .... Facing 143
30. Kennco Explorations, (Western) Limited, Sam Goosly property, plot of fractures and beds 145
31. Index map showing mineral properties in the Cariboo and part of the Skeena and Kamloops Mining Divisions .... Facing 159
32. Sketch of Granite Mountain area, Cariboo district 165
33. Index map showing mineral properties in the Clinton, Lillooet, New Westminster, Vancouver, Nanaimo, Alberni, Victoria, and part of the Skeena Mining Divisions .... Facing 179
34. Index map showing mineral properties in the Kamloops, Similkameen, Greenwood, Vernon, Nicola, and Osoyoos Mining Divisions .... Facing 227
35. Index map showing mineral properties in the Highland Valley area .... Facing 243
36. Copper Mountain camp, generalized geology and location map .... Facing 283
37. Copper Mountain camp, diamond-drill hole sections .... Facing 285
38. Geology of the Okanagan Falls area .... Facing 295
39. Dusty Mac property, composition frequency distribution of Early Tertiary volcanic rocks in the South Okanagan-Boundary areas 295
40. Dusty Mac property, equal area plot of fractures and beds 296
41. Index map showing mineral properties in the Golden, Revelstoke, Fort Steele, Trail Creek, Nelson, and Slocan Mining Divisions .... Facing 313
42. Moon Creek asbestos showing 382
43. Laredo limestone quarry, Aristazabal Island 390
44. Dahl Lake limestone quarry 393
45. Mount Rose silica quarry 406

GENERAL REVIEW OF EXPLORATION AND METAL MINING

By Stuart S. Holland

Production.—Metal production in British Columbia has been rising since 1958 and in 1969 set a new record with a value of $294,175,536, a gain of $43.2 million or 17.2 per cent. This is the fourth consecutive year in which a new production record has been established. The increase in value over that of 1968 is due to the remarkable increase in the value of copper and molybdenum. Accompanying increases in zinc, lead, and other metals more than compensated for the decrease in value of silver and of iron concentrates.

The value of gold production again decreased, the amount being almost exactly the same as the decline in production at Bralorne mine. The continuing decline of Bralorne mine means that a continually rising percentage of gold is being contributed by base-metal mines. In 1969 this amounted to 58.7 per cent, compared with 54.2 per cent in 1968.

Silver production decreased significantly because of declines in production at Horn Silver, Highland Bell, Lynx, and other mines. Value of production was proportionately lower because of the decline in average silver prices from $2.31 in 1968 to $1.93 in 1969.

Although copper production increased 4 per cent in quantity it increased 27.8 per cent in value because of the increase in average copper price from 54.22 cents per pound in 1968 to 66.66 cents per pound in 1969. Increased quantity was not the result of the operation of new mines but from increased production from all the important copper mines in the Province with the exception of Bethlehem; that is, Craigmont, Granisle, Tasu, Britannia, Lynx, Phoenix, and Old Sport.

Increased copper production in 1970 can safely be predicted because of new production from Brenda's 24,000-ton-per-day operation, Churchill Copper's (Magnum) 750-ton-per-day operation, and from Greyhound's 2,000-ton-per-day operation, as well as from increased concentrator capacity at Bethlehem and Phoenix mines. It is possible that late in the year production may start from Granduc mine which when at full capacity will be operating at 7,000 tons per day.

Value of production of lead and zinc increased slightly, the amount of lead was down and that of zinc was up fractionally. Production is dominated by the Sullivan, Bluebell, Jersey, Reeves MacDonald, and Lynx mines. Production of both metals was lower at the Jersey, Reeves MacDonald, and Bluebell mines and this reflects their declining status, whereas there was a significant increase in production from Sullivan, and an increase also at the Lynx.

It is anticipated that production from Reeves MacDonald, which will finish late in 1970, will be replaced by production from ore mined at the company's newly developed Annex mine. Small new production in 1970 is anticipated from concentrators being installed at the True Fissure and Ruth Vermont mines. It is expected that the Jersey mine may be closed by September, 1970, and the Bluebell mine is apt to close by 1971 unless current mine exploration is productive.

Production of iron concentrates declined both in quantity and value. Increases at Tasu and Texada mines were more than compensated by the closure of Zeballos Iron Mines Limited (FL mine) and the termination of concentrate shipments from the stockpile at Brynnor mine.

Production of molybdenum increased by 28.8 per cent in quantity and by 42.9 per cent in value. This was the result of tremendously increased production at

Endako mine because of their increased daily throughput of 27,000 tons, in addition to increased production at the British Columbia Molybdenum and Coxey mines.

Increased molybdenum production is anticipated in 1970 from Brenda Mines Ltd.'s 24,000-ton-per-day copper-molybdenum operation and the small high-grade deposit of King Resources Company near Revelstoke.

Tungsten, as scheelite, has not been produced since the closure of the Emerald mine in 1958. It is anticipated that Canadian Exploration Limited will be producing from the Invincible by September, 1970.

Mining and Concentrating.—The metals produced in 1969 were contained in 31,755,343 tons of ore mined at 60 mines. Of these, eight mines produced more than 1,000,000 tons each, 11 produced between 100,000 and 1,000,000 tons, and 11 produced between 1,000 and 100,000 tons.

Ore mined from nine open-pit mines amounted to more than 21 million tons. The two largest mines in the Province, Endako at 9,628,000 tons and Bethlehem at 5,386,691 tons, are open-pit operations. The largest underground mines are the Sullivan at 2,157,522 tons and Craigmont at 1,810,855 tons.

In 1969, 29 concentrators were in operation: 11 treated silver-lead-zinc ore, 5 treated copper ore, 4 treated molybdenum ore, 3 treated copper-iron ore, 2 treated gold-silver ore, 1 treated copper-zinc ore, 1 treated iron ore, 1 treated nickel-copper ore, and 1 treated mercury ore.

In 1969, a new concentrator was completed at Brenda mine, capacity 24,000 tons per day, to treat copper-molybdenum ore, and a small crusher and Wilfley table were set up at the Chaput mine, Lumby, to treat silver-lead-zinc ore. Concentrators were under construction at the following mines: Greyhound mine, Greenwood, 2,000 tons per day, copper ore; Granduc mine, Stewart, 7,000 tons per day, copper ore; Magnum mine, Delano Creek, 750 tons per day, copper ore; Silverquick mine, Tyaughton Creek, 500 tons per day, mercury ore; Mount Copeland mine, Hiren Creek, 200 tons per day, molybdenum ore; True Fissure mine, Ferguson, 125 tons per day, silver-lead-zinc ore. The concentrator at the Mineral King mine was dismantled in preparation for removal and reassembly at the Ruth Vermont on Vermont Creek.

Milling at Endako mine was stabilized at about 27,000 tons per day and at Granisle at about 6,400 tons per day. The milling rate at Bethlehem mine was increased to 15,000 tons per day, at Phoenix mine to 2,500 tons per day, at Boss Mountain mine to 1,600 tons per day, at Pride of Emory to 1,600 tons per day, at Pinchi Lake mine to 1,000 tons per day, and at Lynx mine to 1,150 tons per day, of which about 400 tons was being mined underground.

During the year, mining and concentrating operations were terminated by Zeballos Iron Mines Limited (FL mine) where the camp was sold, and the concentrator and dock dismantled and removed.

Smelting.—The Trail smelter, owned and operated by Cominco Ltd., is the only smelter in operation in the Province. It received 155,093 tons of lead concentrates and 193,455 tons of zinc concentrates from the company's two operating mines (Sullivan and Bluebell) in British Columbia. It treated on a custom basis 2,596 tons of lead concentrates, 6,172 tons of zinc concentrates, 7,456 tons of crude ore, and 3,158 tons of silver-gold concentrates from British Columbia mines. The smelter also treated a large tonnage of ore, concentrates, and scrap from sources outside the Province, of which the company's Pine Point mine was the main contributor.

Products exported to American smelters were: Copper concentrates, 24,379 tons; lead concentrates, 9,542 tons; and zinc concentrates, 38,951 tons. The value of these products was $26,611,627, an increase from 1968. It represents about 9 per cent of the value of the 1969 metal production of the Province.

Products exported to Japanese smelters were: Copper concentrates, 268,892 tons; nickel-copper concentrates, 16,670 tons; and iron concentrates, 1,859,617 tons. The value of these products was $127,243,067, an increase of $15,799,317 from 1968. It represents about 43.3 per cent of the value of the 1969 metal production of the Province.

Development.—At Brenda Mines Ltd., preproduction development, including preparation of the open pit for mining and construction of a concentrator of 24,000 tons daily capacity, was completed. Preliminary production began late in 1969 but the concentrator did not reach capacity production until May, 1970.

At Granduc Mines, Limited, development continued, but operations were delayed by a slowdown and lockout lasting almost seven months. Production from its 7,000-ton-per-day concentrator is expected to begin late in 1970.

Lornex Mining Corporation Ltd. announced plans to put their Highland Valley property into production in 1972 as an open-pit operation at 38,000 tons per day.

Utah Construction & Mining Co. announced plans to bring their Island Copper property at Rupert Inlet into production in 1971 as an open-pit operation at 33,000 tons per day.

In November, Nadina Explorations Limited announced their intention of equipping their Silver Queen mine for production by November, 1971.

Churchill Copper Corporation Ltd. went ahead with underground development work at the Magnum mine on Delano Creek and with the construction of a 750-ton-per-day concentrator about 13 miles distant on Racing River. Production is expected early in 1970.

Aabro Mining & Oils Ltd. began open-pit preparation and building a 2,000-ton-per-day concentrator on the Mother Lode to process ore from the Greyhound property at Greenwood.

Silverquick Development Co. (B.C.) Ltd. built a 500-ton-per-day concentrator and a 4-ton-per-day retort at the Silverquick mercury mine on Tyaughton Creek.

King Resources Company did a considerable amount of underground development work at their Mount Copeland mine and built a 200-ton-per-day concentrator to process molybdenum ore. Production is expected by mid-1970.

Canadian Exploration Limited is preparing to bring its Invincible tungsten mine on Iron Mountain near Salmo into production in 1970.

Reeves MacDonald Mines Limited did a considerable amount of drilling and underground development work on their Annex property preparatory to bringing it into production when the Reeves MacDonald mine is closed late in 1970.

Statistical returns from metal-mining companies indicate that in 1969, $75 million was spent by Brenda Mines Ltd., Granduc Mines, Limited, Churchill Copper Corporation Ltd., King Resources Company, and other companies in preproduction mine development, concentrator construction, the provision of power, transportation, and other facilities, and in additions to existing plant capacities.

Prospecting and Exploration.—The number of mineral claims recorded in 1969 was 84,665, a 40-per-cent increase over 1968, but still somewhat less than the record number of 91,703 recorded in 1966. There were increases in claims recorded in most mining divisions, with significantly increased activity in the Omineca, Kamloops, Cariboo, and Atlin mining divisions and minor declines in Osoyoos, Fort Steele, and Revelstoke.

Certificates of work, which also give a measure of the amount of exploration work currently being done, also showed an increase in the number issued, from 66,229 in 1968 to 88,954 in 1969.

The number of free miners' certificates issued to individuals increased from 9,305 in 1968 to 9,880 in 1969 and to companies from 761 in 1968 to 1,060 in 1969. The number of free miners' certificates issued to companies reached a new high and is a further indicator of the increase in amount of company-financed exploration.

In order to record the greatly increased amount of mining exploration in the Province and to provide statistics and information useful to the industry, the Department has had to rely more and more upon information voluntarily supplied by the industry itself. This is obtained by means of a questionnaire which, since 1964, is mailed annually to all mining exploration companies. With the growing co-operation of the industry, it is possible to provide a useful and reasonably complete record of exploration activities.

In 1969, Departmental exploration forms were mailed to 1,679 companies registered in the Province. Replies received from 862 companies indicated that 330 were actively engaged in exploration in British Columbia and that 532 were inactive. The co-operation of companies in providing information is gratefully acknowledged by the Department and should be greatly appreciated by all members of the industry and users of this Report.

Statistical returns received by the Economics and Statistics Branch, Department of Industrial Development, Trade, and Commerce, Victoria, indicate that about $37.5 million was spent in prospecting and in the exploration of 511 properties.

Properties where major exploration programmes involving more than 10,000 feet of diamond drilling and (or) percussion drilling were undertaken are as follows: Adanac molybdenum property near Atlin; Davis-Keays copper property south of the Alaska Highway; Liard copper property on Schaft Creek; Joem, Rain molybdenum property on Mount Haskins; Silver Queen silver-lead property near Cassiar; Dolly Varden silver property at Alice Arm; Kofit copper property at Babine Lake; Ox molybdenum property at Ox Lake; Nadina (Silver Queen) silver-copper-gold property at Owen Lake; SG copper-silver property at Goosly Lake; Boot, molybdenum prospect at Endako; Gibraltar-Pollyanna property at Granite Mountain (McLeese Lake); BB copper property at Taseko Lakes; Bethlehem, Valley Copper, Highmont, and Alwin copper properties in Highland Valley; Ingerbelle copper property at Princeton; and the Big Bonanza silver-lead-zinc property at Bull River. After completing a large amount of exploration work, Similkameen Mining Company Limited was making feasibility studies to evaluate the productive capabilities of the Ingerbelle and Copper Mountain properties.

Information provided to the Department regarding exploration work done is summarized in the following table. Of 511 properties enumerated, geological mapping was done on 246, geophysical surveys at 209, and geochemical surveys at 243. This work in most instances preceded surface work which was done at 190, and drilling of one sort or another being done at 218. The modern trend in exploration is illustrated by the fact that underground work (excluding diamond drilling) was done at only 22 properties.

In 1969, exploratory diamond drilling comprised 682,803 feet of surface diamond drilling, 55,752 feet of underground diamond drilling, 8,876 feet of rotary drilling, and 253,449 feet of percussion drilling.

The exploration companies also reported that a total of not less than 11,466 man-months was expended on exploration in the field by company and contractor employees.

Mining Division	Number of Properties	Type of Work					Drilling				Employment	
		Geological Mapping	Geophysical Surveys	Geochemical Surveys	Physical		Surface Diamond Drilling (Ft.)	Underground Diamond Drilling (Ft.)	Rotary (Ft.)	Percussion (Ft.)	Company Employees (Man-months)	Contractor Employees (Man-months)
					Surface	Underground						
Atlin	5	2	—	—	3	—	35,132	—	—	—	56	189
Liard	29	21	9	9	18	2	63,655	3,478	—	—	673	409
Skeena	17	10	7	8	10	3	13,227	2,710	—	12,000	364	118
Omineca	104	44	44	60	35	5	98,854	3,561	500	16,655	1,037	522
Cariboo	22	12	12	16	6	—	122,996	—	133	3,700	353	477
Clinton	13	5	7	7	6	—	4,355	—	—	8,000	77	62
Lillooet	14	10	7	7	11	—	16,663	1,544	—	4,700	377	121
Vancouver	12	4	5	5	3	—	205	1,272	—	—	48	26
New Westminster	10	4	5	5	6	1	1,936	—	—	—	99	26
Victoria	11	7	5	8	4	—	1,088	—	—	—	139	83
Alberni	16	9	7	11	5	1	1,911	2,388	1,000	—	152	28
Nanaimo	32	12	17	18	7	—	19,617	—	204	2,670	364	73
Kamloops	96	47	47	41	32	3	192,001	34,201	2,530	15,196	1,119	1,615
Nicola	24	9	12	13	4	—	7,490	—	—	5,624	189	74
Similkameen	22	10	7	8	8	2	17,914	—	3,467	77,748	240	290
Osoyoos	8	—	2	1	2	—	4,401	—	—	—	41	44
Vernon	5	4	2	3	3	—	9,602	1,736	—	—	92	35
Greenwood	20	10	8	8	5	—	19,633	—	621	—	284	150
Trail Creek	3	2	—	—	—	1	2,079	910	—	—	24	138
Nelson	10	6	4	4	6	—	9,652	—	421	107,156	156	348
Slocan	12	5	—	4	8	4	6,407	3,152	—	—	224	50
Revelstoke	7	3	4	2	3	1	4,065	800	—	—	91	172
Golden	7	5	3	2	2	1	2,041	—	—	—	17	19
Fort Steele	12	5	5	3	3	—	27,889	—	—	—	80	111
Totals	511	246	209	243	190	22	682,803	55,752	8,876	253,449	6,286	5,180

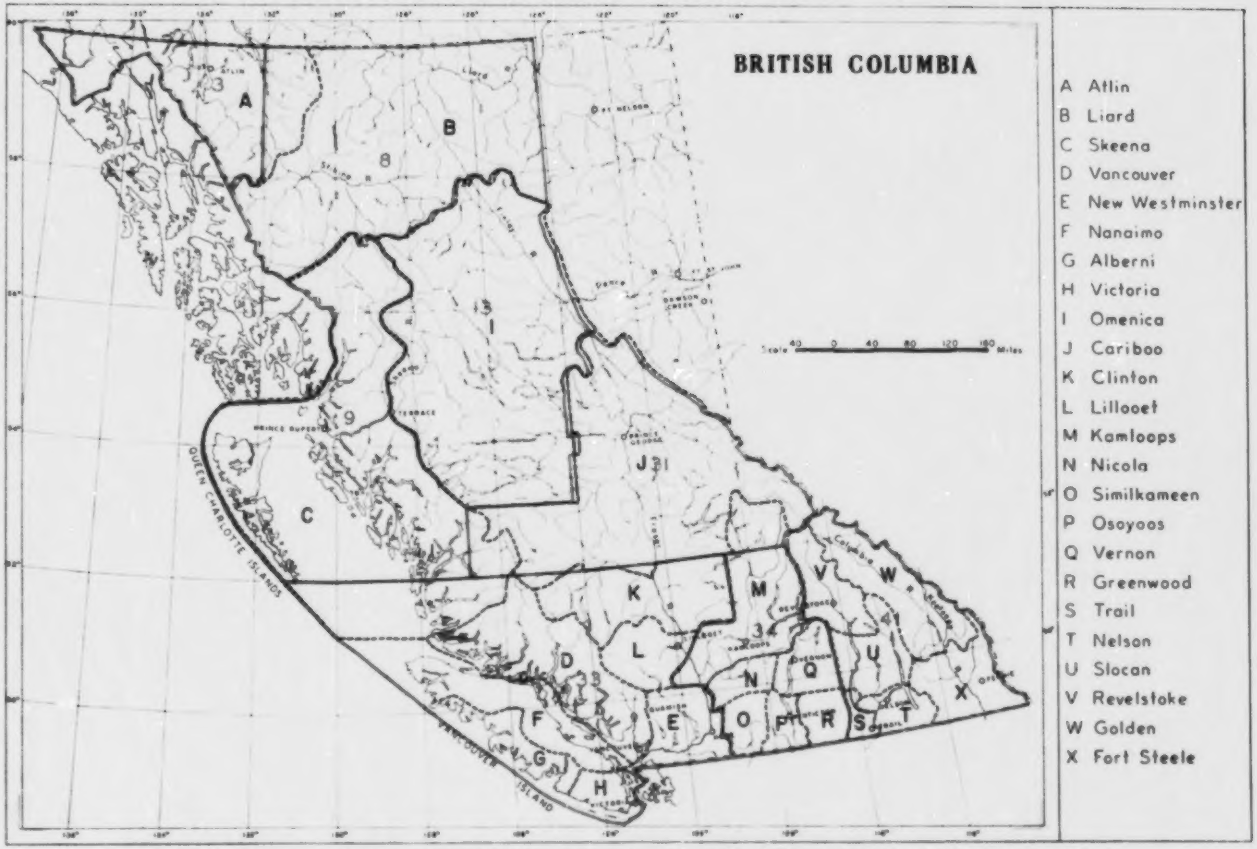

BRITISH COLUMBIA
Scale 40 0 40 80 120 160 Miles
A Atlin
B Liard
C Skeena
D Vancouver
E New Westminster
F Nanaimo
G Alberni
H Victoria
I Omenica
J Cariboo
K Clinton
L Lillooet
M Kamloops
N Nicola
O Similkameen
P Osoyoos
Q Vernon
R Greenwood
S Trail
T Nelson
U Slocan
V Revelstoke
W Golden
X Fort Steele
QUEEN CHARLOTTE ISLANDS
VANCOUVER ISLAND
3
8
9
13
31
33
34
41

Figure 2. Index map showing mining divisions and outlines (in red) of Figures 3, 8, 9, 13, 31, 33, 34, and 41.

REPORTS ON METAL MINES

INTRODUCTION

Location and Names.—Beginning with this Report the locations of properties are indicated by latitude and longitude and by N.T.S. sheet designation. The locations of large claim groups are given as a range of co-ordinates which refers to the size of the holding, not the area in which the work was done. The locations of the centres of small claim groups and of mineral deposits are shown as a single set of co-ordinates, the accuracy of which varies with the source of the data. Properties are given names mainly selected from the names of one or more claims of a group. Essentially all names of claims within a group are given under the heading " Claims."

Sources of Information.—A considerable amount of information in the following reports was supplied by exploration companies. Their co-operation in completing and filing exploration questionnaires for the properties on which they worked is acknowledged by the Department and should be greatly appreciated by all users of this Report.

Information is obtained by staff geologists from geological, geophysical, and geochemical reports that are accepted for assessment work credit. An attempt is being made to summarize this material for the record. The reports are on file in the Mineralogical Branch, Department of Mines and Petroleum Resources, Douglas Building, Victoria. The properties and their locations are listed on pages 349 to 374. Specific references to assessment reports are made in various property reports that follow.

The following section contains reports by staff geologists on mineral deposits currently under exploration and on some mineral discoveries that have been made recently. There are informative reports on the following properties: Adera (Adanac) near Atlin, pages 29 to 35; Tiger at Alice Arm, pages 60 to 62; Esperanza, Alice at Alice Arm, pages 64 to 67; DOM in the Telkwa Range, pages 87 to 91; Ox near Tahtsa Lake, pages 93 to 97; Geology of the Owen Lake area and Silver Queen and Diamond Belle properties, pages 122 to 141; SG at Goosly Lake, pages 142 to 148; Geology of the Granite Mountain Stock, pages 162 to 172; Copper Mountain mine, pages 283 to 287; Dusty Mac at Okanagan Falls, pages 294 to 296.

Publications.—In 1969, one bulletin was published by the Mineralogical Branch, that is Bulletin No. 56, " Geology and Geochronology of the Guichon Creek Batholith," by K. E. Northcote. The material in the report was originally presented by Mr. Northcote to the Department of Geology of the University of British Columbia in the form of a thesis, in partial fulfilment of the requirements for a Ph.D. degree. The work is a sufficiently important contribution to the geology of the Guichon Creek Batholith to justify its publication in bulletin form by the Department. It may be considered part of the Department's continuing study of the Guichon Creek Batholith.

Additional reports published in 1969 by officers of the Mineralogical Branch resulting directly from their work as staff geologists include the following:—

CARTER, N. C., and KIRKHAM, R. V. Geological Compilation Map of Smithers, Hazelton, and Terrace Areas, *B.C. Dept. of Mines & Pet. Res.*, Map 69-1.

FYLES, JAMES T. Structure of the Shuswap Metamorphic Complex in the Jordan River Area Northwest of Revelstoke, *Geol. Assn. Can.*, Sp. Paper No. 6, pp. 87–98.

Fyles, James T. Evolution of the Slocan Syncline in South-central British Columbia, *Can. Jour. Earth Sc.*, Vol. 6, pp. 802–806.

Hedley, M. S. Records Continue to Topple—Review of Production and Exploration in British Columbia in 1968, *Western Miner*, Vol. 42, No. 4, pp. 93–97.

McCammon, J. W. Industrial Minerals Résumés, *B.C. Dept. of Mines & Pet. Res.*

Sutherland Brown, A. Aiyansh Lava Flow, *Can. Jour. Earth Sc.*, Vol. 6, pp. 1460–1468.

——— Mineralization in British Columbia and the Copper-Molybdenum Deposits, *C.I.M.*, Trans., Vol. LXXII, pp. 1–5.

——— Distribution of Metallic Mineralization in British Columbia, *Can. Min. Jour.*, Vol. 90, No. 4, pp. 53–55.

Details of newly released aeromagnetic maps, resulting from the joint Federal-Provincial Government financed programme of aeromagnetic surveying, are given in the section on Departmental Work.

KEY TO PROPERTIES ON INDEX MAP, FIGURE 3

109 ADERA, page 29.
126 FALUKA, JOMO, page 36.
131 LC 1, PETER, page 37.
132 LC 2, page 37.
149 BUB, page 36.
153 BEAVER, LOON (DEEP BAY), page 36.
154 MILDRED, ICE, ACE, page 28.
161 LUNAR, page 28.
162 FOX, page 36.
166 NORSK, page 37.
169 BIG CANYON (RUFFNER), page 28.

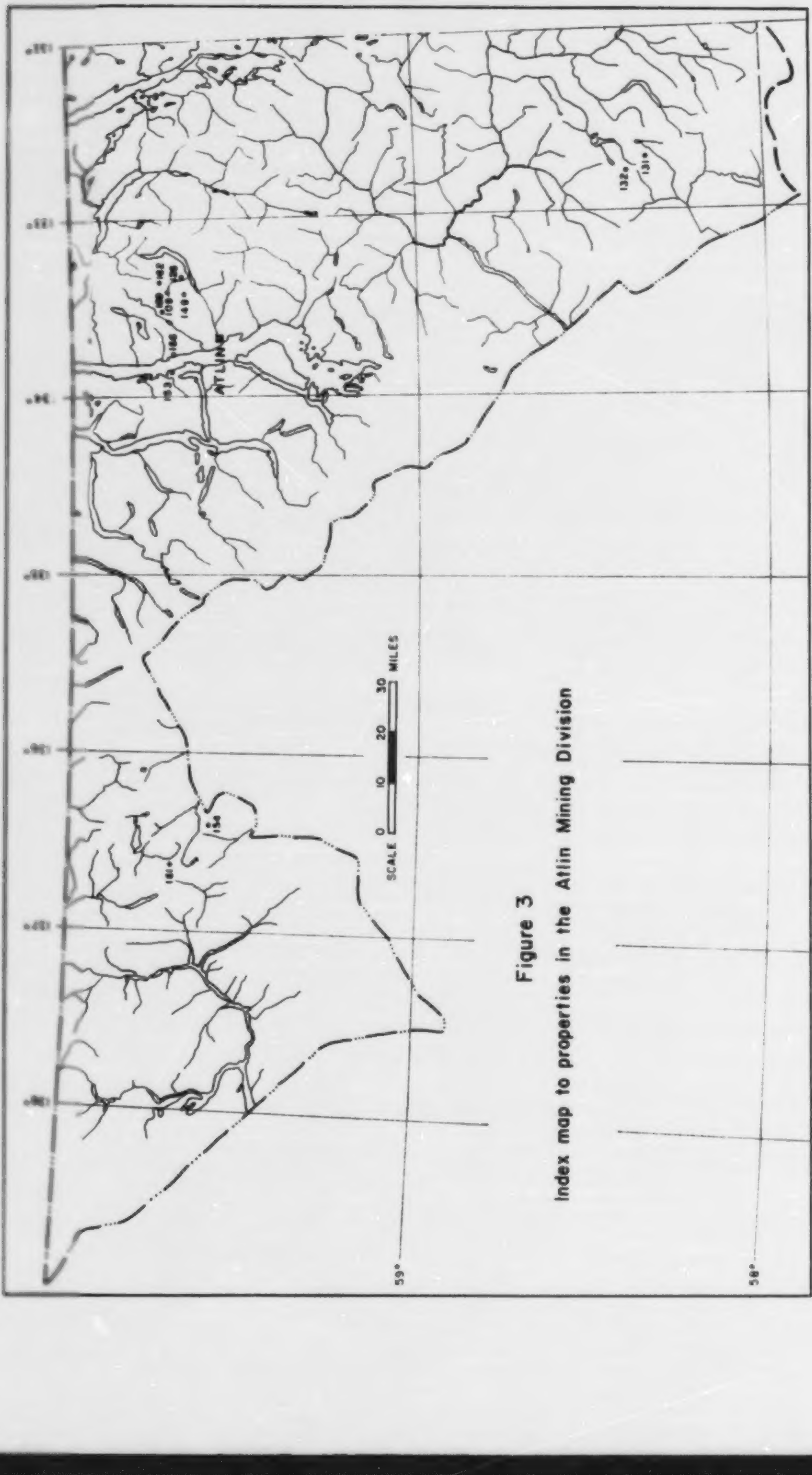

ATLIN
132
131
149
134
161
59°
58°
SCALE
0
10
20
30
MILES
Figure 3
Index map to properties in the Atlin Mining Division

Figure 3. Index map showing mineral properties in the Atlin Mining Division.

ATLIN MINING DIVISION

HAINES ROAD

LUNAR (No. 161, Fig. 3)

Location: Lat. 59° 41.8′ Long. 136° 38′ (114P/10E)
Elevation 4,000 feet, 1 mile west of Mile 68.5 on the Haines road.

Claims: LUNAR 1 to 16.

Access: From the Haines road.

Owner: Erwin Kreft.

Operators: MAX FUERSTNER and ERWIN KREFT, P.O. Box 248, Whitehorse, Y.T.

Work Done: Five line-miles was picketed and magnetometer and electromagnetic surveys were made in order to find mineralized skarn zones.

Reference: Assessment Report No. 2136.

MILDRED, ICE, ACE (No. 154, Fig. 3)

Location: Lat. 59° 35.5′ Long. 136° 24.5′ (114P/9W)
Elevation 5,250 feet on the north side of Three Guardsmen Mountain.

Claims: MILDRED, ICE 1 to 22, ACE 1 to 20, JUNE 1 to 4, BUG 1 to 6.

Access: By road from Haines, Alaska.

Owner: PREMIER MINING CORPORATION LTD., 818, 510 West Hastings Street, Vancouver 2.

Metals: Copper, iron.

Work Done: Geological mapping.

Reference: *B.C. Dept. of Mines,* Bull. No. 25, p. 58.

ATLIN

BIG CANYON (RUFFNER) (No. 169, Fig. 3) By H. Bapty

Location: Lat. 59° 44′ Long. 133° 31.5′ (104N/12E)
At elevations of 3,500 to 6,000 feet on Mount Vaughan, on Fourth of July Creek, 10 miles northeast of the Atlin road.

Claims: One hundred and forty-seven Crown-granted and recorded mineral claims covering and surrounding the old Atlin-Ruffner mine and including the RUFFNER, BIG CANYON, CANUCK, ALPHA, OMEGA, and other groups.

Access: Eighteen miles by road north of Atlin, 10 miles east of Fourth of July Creek.

Owner: INTERPROVINCIAL SILVER MINES LTD., 355 Burrard Street, Vancouver 1; B. Page, manager.

Metals: Silver, lead, zinc.

Work Done: The main orebody was being prepared for production and some stope preparation was also begun. Work was done on mine dumps and the millsite. Some road maintenance was undertaken.

References: *Minister of Mines, B.C.,* Ann. Repts., 1922, p. 89; 1968, p. 23; Assessment Report No. 2203.

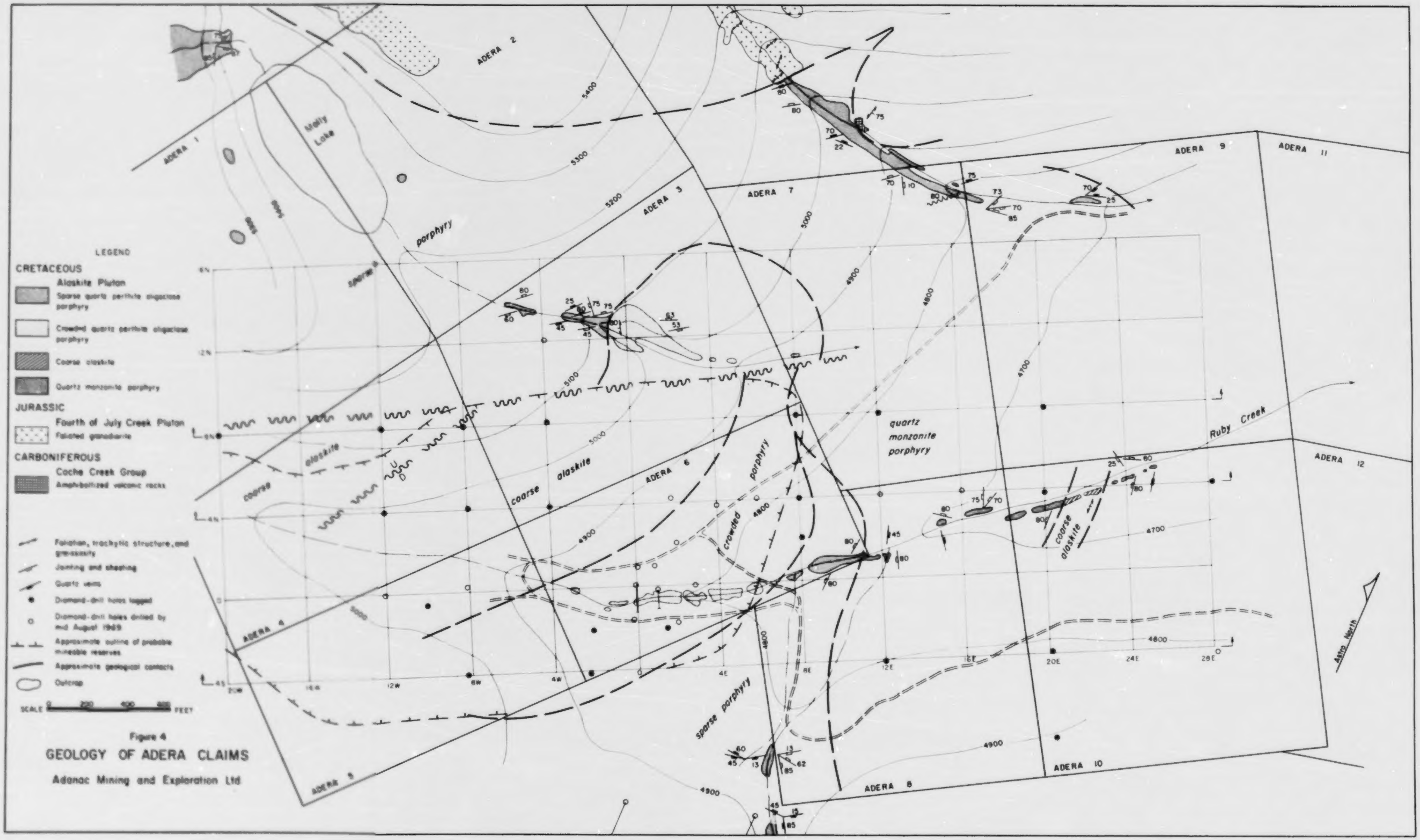

LEGEND
CRETACEOUS
Alaskite Pluton
Sparse quartz perthite oligoclase porphyry
Crowded quartz perthite oligoclase porphyry
Coarse alaskite
Quartz monzonite porphyry
JURASSIC
Fourth of July Creek Pluton
Foliated granodiorite
CARBONIFEROUS
Cache Creek Group
Amphibolitized volcanic rocks
Foliation, trachytic structure, and gneissosity
Jointing and sheeting
Quartz veins
Diamond-drill holes logged
Diamond-drill holes drilled by mid August 1969
Approximate outline of probable mineable reserves
Approximate geological contacts
Outcrop
SCALE 0 200 400 600 FEET
ADERA 1
ADERA 2
ADERA 3
ADERA 4
ADERA 5
ADERA 6
ADERA 7
ADERA 8
ADERA 9
ADERA 10
ADERA 11
ADERA 12
Molly Lake
sparse porphyry
quartz monzonite porphyry
coarse alaskite
crowded porphyry
Ruby Creek
Astro North
5400
5300
5200
5100
5000
4900
4800
4700
20W
16W
12W
8W
4W
0
4E
8E
12E
16E
20E
24E
28E
16N
12N
8N
4N
0
4S

Figure 4

GEOLOGY OF ADERA CLAIMS

Adanac Mining and Exploration Ltd

ADERA (No. 109, Fig. 3)

By A. Sutherland Brown

LOCATION: Lat. 59° 42.5′ Long. 133° 24′ (104N/11W)
On upper Ruby Creek, some 21 miles by road from Atlin.

CLAIMS: ADERA group of claims, 12 claims covering main showings, also KEY 1 to 44, RU 1 to 8, PACIFIC 1 and 2, NI 1 to 4.

ACCESS: Seventeen miles by road from Atlin via Pine Creek and Surprise Lake to the Adanac camp; 4 miles from camp to showings.

OPERATOR: ADANAC MINING AND EXPLORATION LTD., 355 Burrard Street, Vancouver 1; John D. Pelletier, president; James Wallis, resident manager.

METAL: Molybdenum.

WORK DONE: Thirty-eight thousand feet of diamond drilling, BQ, NQ, and HQ core and some soil geochemistry. Exploration started in the late autumn of 1968. A 30-kva. diesel is in use for camp lighting; 90,700 kilowatt-hours of electricity was produced during 1969.

REFERENCE: Aitken, J. D., 1959, *Geol. Surv., Canada,* Mem. 307.

DESCRIPTION:

Geology of the Region

The Adanac property is situated on upper Ruby Creek. The topography, characteristic of the Teslin Plateau, consists of large round-topped mountains of concordant summit heights isolated by broad drift-covered valleys with steep sides. The showings extend from 4,800 feet to about 5,100 feet elevation, mainly in the valley.

The body of molybdenite mineralization on the Adera claims occurs at the periphery of a small boss called the Mount Leonard Boss which in all probability is connected at shallow depth to the main Surprise Lake Batholith. Both the boss and the main batholith are composed very largely of alaskite, that is, a two-feldspar granite with less than 5 per cent mafic minerals. The Mount Leonard Boss intrudes a sequence of rocks ranging from the Permo-Pennsylvanian Cache Creek metavolcanic rocks, with remnants of the ultramafic Atlin Intrusions of similar age, to the Fourth of July Batholith of probable Jurassic age. The alaskite intrusions are judged to be of mid-Cretaceous age. They are overlain by valley-filling flows of olivine basalts and on Ruby Mountain by the remnants of a central volcano that is Late Tertiary and Pleistocene (*see* Aitken, 1959).

Detailed Geology

The valley floor of upper Ruby Creek is largely covered by coarse drift and the lower slopes by felsenmeer. Outcrops are limited to small parts of the main tributary streams and steep upper slopes. However, information from extensive diamond drilling permits compilation of a reasonably accurate geological map (Fig. 4). This map was drawn in August from examination of available outcrop and a relatively large part of the core produced to that date. The topography is based on a company survey of drill-holes, with additional barometer traverses by the writer. Additional information was received from the company in the autumn to augment that gathered in the field.

The main part of the map is underlain by various phases of the Mount Leonard Boss which are in contact along the northern border with older rocks. The original stratiform rocks are represented by a small outcrop of amphibolitic gneiss that may originally have been a tuff. It is now a highly foliated rock of variable grain size composed principally of hornblende and andesine plagioclase in variable but subequal amount with minor ilmenite and biotite. The gneissocity trends about north 10 degrees east and dips about 75 degrees east. The amphibolitic gneiss is separated by a tongue of unfoliated porphyritic aplite from the Fourth of July Batholith. The latter is composed of biotite hornblende granodiorite with a marked foliation subparallel to that of the amphibolite. Outcrop and felsenmeer of the granodiorite extend westward to the steep slopes north of Molly Lake where the foliation trends more easterly. The granodiorite is slightly unusual as it is a potassium-rich, melanocratic rock composed of about 40 per cent plagioclase normally zoned from An$_{50}$ to An$_{34}$, 17 per cent perthite in part as myrmekite, 15 per cent quartz, 21 per cent hornblende, and 6 per cent biotite with notable amounts of apatite and zircon. It exhibits marked cataclasis and recrystallization shown by shattered quartz, preferred orientation of plagioclase and hornblende, tails of aligned biotite on lenses of hornblende, virtual destruction of much of the zoning of plagioclase, poikilitic hornblende, and myrmekite.

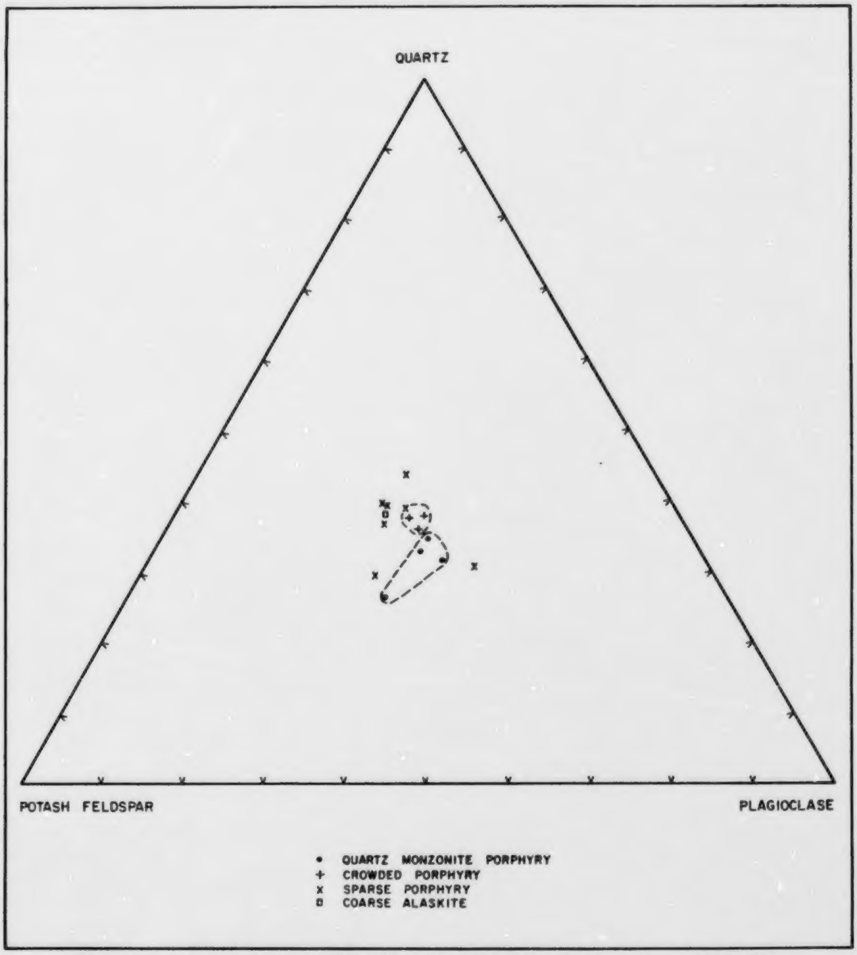


Figure 5. Adanac Mining and Exploration Ltd., mineral composition of alaskite phases on the Adera claims.

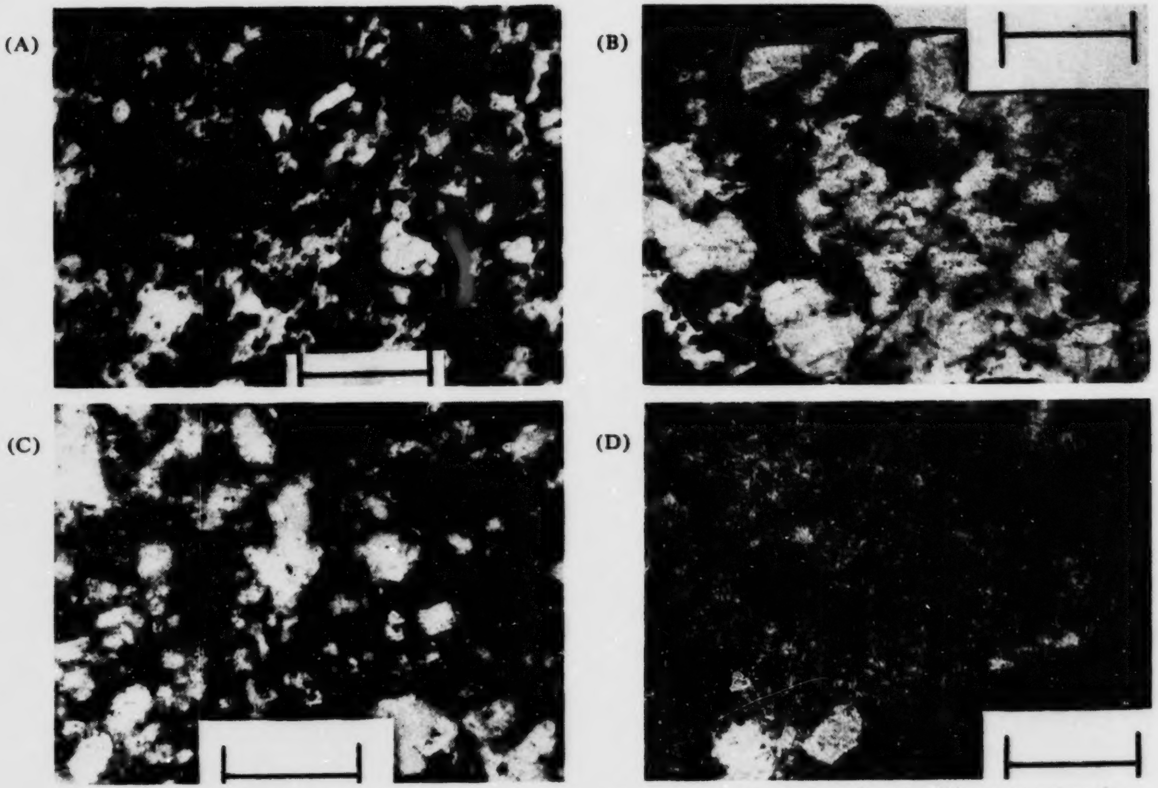


Plate I.—Phases of the Mount Leonard pluton on the Adanac property, scale equals 1 centimetre: (A) quartz-monzonite porphyry (1); (B) coarse alaskite (2); (C) crowded porphyry (3); (D) sparse porphyry (4).

The Mount Leonard alaskite pluton is composed of numerous phases. In the area of Figure 4, four phases are mappable. These phases are texturally very different but chemically nearly identical (*see* Fig. 5 and the accompanying table). All are actually alaskites of subequal total quartz, perthite, and oligoclase with 5 per cent or less mafic minerals (*see* Fig. 5). One phase which may contain 5 per cent mafic minerals or a little less and more than the average amount of oligoclase is called a quartz-monzonite porphyry (1). The other phases are (2) coarse alaskite, (3) crowded quartz-perthite-oligoclase porphyry, and (4) sparse quartz-perthite-oligoclase porphyry. The average mineral composition, percentage of phenocrysts, and the grain size of these phases is shown in the table. The visible amount of oligoclase in the perthite is here shown with the plagioclase.

Although very similar mineralogically, these phases are quite distinct in hand specimen, *see* Plate I. (1) The quartz-monzonite porphyry appears like a medium-grained mottled rock of chalky feldspar and dark-grey quartz with random large phenocrysts. (2) The coarse alaskite is a pegmatitic very coarse mottled rock of irregular texture with dark quartz and light-grey feldspar. (3) The crowded porphyry contains about 50 per cent phenocrysts in a very fine matrix with prominent rounded dark quartz phenocrysts. (4) The sparse porphyry is somewhat variable, commonly having 10 to 20 per cent phenocrysts in a fine aplitic matrix, but may have very few phenocrysts in narrow dykes or chill zones. On the surface all tend to stain a rusty brown, but particularly the sparse porphyries, which take on a light-brown salt and pepper aspect.

Table Showing Mineral Composition of Alaskite Phases

	Quartz-monzonite Porphyry (1)	Coarse Alaskite (2)	Crowded Porphyry (3)	Sparse Porphyry (4)
	(Average of 5)	(Average of 2)	(Average of 4)	(Average of 9)
Quartz	28.5	38.0	37.5	36.7
Potash feldspar	34.5	35.0	31.0	34.3
Plagioclase	31.8	25.0	29.3	26.6
Biotite	3.4	1.5	2.0	1.8
Opaque	0.8	0.5	0.3	0.3
Accessories—				
Apatite	(1)	(2)	(1)	(2)
Zircon	(2)	(2)	(2)	(1)
Fluorite	(1)		——	(1)
Sphene	(2)	(2)	(1)	(2)
Allanite	(2)	(1)	(2)	(2)
Zoned plagioclase composition	An_{34-24}	An_{18-12}	An_{24-10}	An_{32-11}
Average phenocryst (per cent)	10–20	……	45	10
Grain size—				
Phenocrysts mm.	1–10	2–20	0.5–10	1–6
Average matrix mm.	0.3–0.5	——	0.07	0.1–0.3

[1] Abundant.
[2] Present.

Microscopically the quartz-monzonite porphyry (1) is seen to have a nearly seriate texture, from large phenocrysts to fine aplitic matrix. Perthite of bead and string type contains only 5 to 10 per cent oligoclase. Alteration is relatively intense, with plagioclase partly changed to sericite or muscovite and biotite to a chlorite with a light-blue anomalous interference colour. Apatite and fluorite are particularly abundant accessories. The coarse alaskite (2) has a highly irregular texture, with grains as large as 2 centimetres. Perthite has about 30 per cent oligoclase (An_{12}) as string networks with aligned twinning. The plagioclase has normal zoning over the interval An_{18-12}. Biotite is partly altered to penninite chlorite. Zircon, apatite and allanite are all important accessories. The crowded porphyry (3) has large-

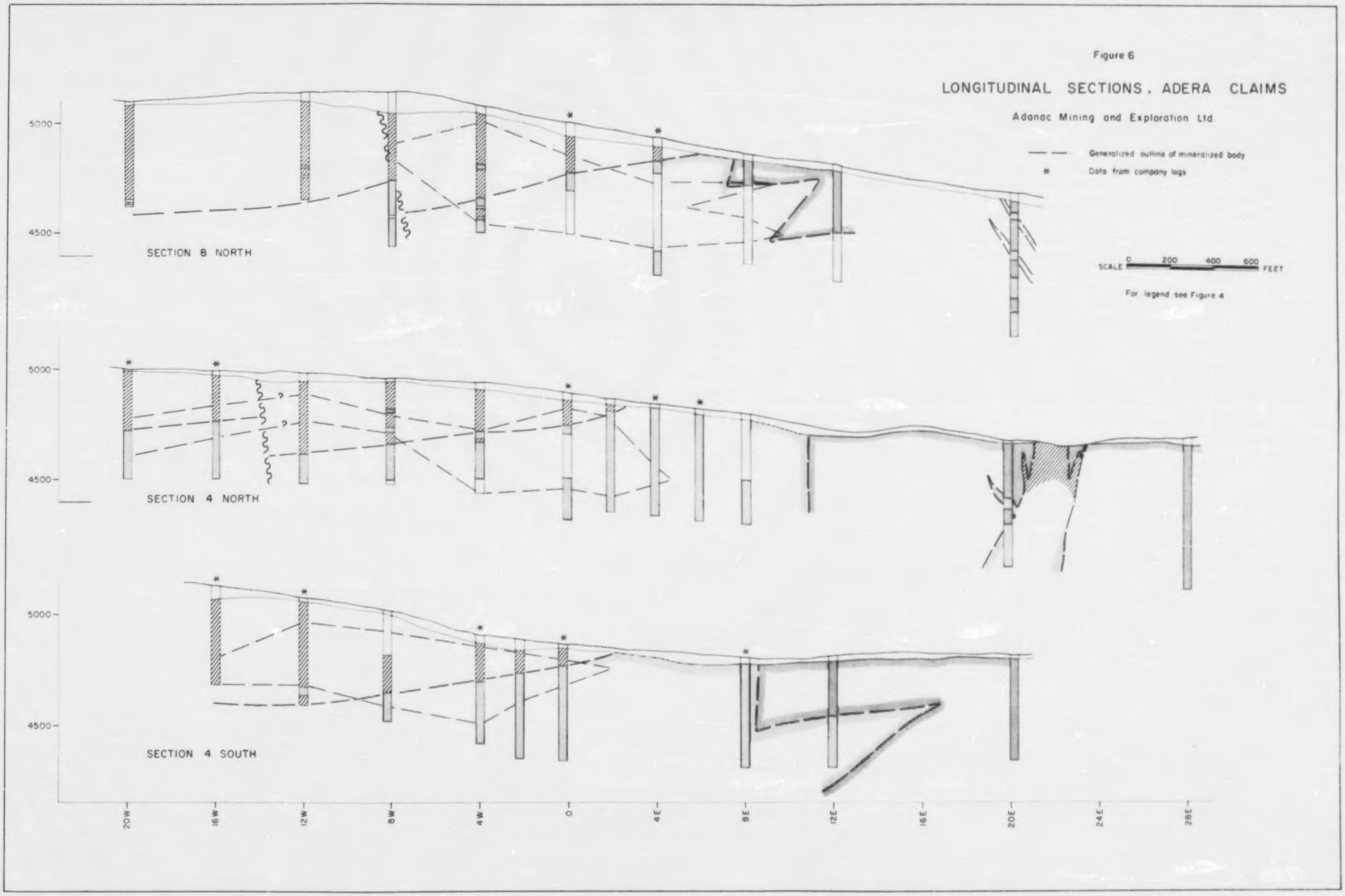


Figure 6

LONGITUDINAL SECTIONS, ADERA CLAIMS

Adanac Mining and Exploration Ltd

Generalized outline of mineralized body
* Data from company logs
SCALE 0 200 400 600 FEET
For legend see Figure 4
5000
4500
SECTION 8 NORTH
SECTION 4 NORTH
SECTION 4 SOUTH
?
20W
16W
12W
8W
4W
0
4E
8E
12E
16E
20E
24E
28E

and middling-sized phenocrysts in a very fine aplitic matrix. Fretted borders of plagioclase phenocrysts are common. Perthite of string network type contains about 20 per cent oligoclase. Plagioclase and biotite may be slightly altered. Apatite and sphene are conspicuous among the accessories. The sparse porphyries (4) are the most variable in composition and texture. All are aplitic rocks, the main difference being their variable percentage of phenocrysts. These may range downward from 20 per cent to 1 or 2 per cent, with about 10 per cent being most common. Most specimens have compositions close to coarse alaskite and crowded porphyry (*see* Fig. 5), but some have slightly different compositions. Chill facies of any phase would be similar in composition to the sparse porphyries.

It is fairly clear that all phases represent about the low melting or eutectic composition of the Qu-An-Ab-Or system.

Structural Relations.—The relative age-sequence of the phases is fairly clear. The quartz-monzonite porphyry (1) is the oldest. It is intruded by all other phases and is the most altered. The coarse alaskite appears next oldest for it is cut by crowded porphyry, sparse porphyry, and aplite dykes and also is altered more than these phases. However, the coarse alaskite may also grade into crowded porphyry. The latter (3) is cut by aplite dykes and grades into sparse porphyry, so that it may be the same age or slightly older than some of the sparse porphyry. The sparse porphyry (4) is itself cut by aplitic dykes and also grades into almost phenocryst-free aplite.

Longitudinal sections (Fig. 6) illustrate the structural relations. They show the intrusion of the quartz-monzonite porphyry (1) by the other phases, the flat sheet-like nature of the main coarse alaskite body, and the gradation of various younger phases. It shows that the eastern dyke complex of coarse alaskite exposed in the creek grades downward to sparse porphyry possibly through crowded porphyry. Gradation from sparse porphyry to crowded porphyry is shown farther west in the creek, between the creek and drill-holes on 4 south line, and elsewhere. Between coarse alaskite and crowded porphyry it is shown in diamond-drill hole 8W 4S and in 4W 8N.

In the crowded and sparse porphyry in the vicinity of the creek showings there are some large tabular bodies that look like dykes but may well be large inclusions. They have a composition nearly identical to the quartz-monzonite porphyry (1), but have a fine aplitic matrix and include some hornblende as well as biotite.

In summary, the quartz-monzonite porphyry (1) is clearly the oldest phase and the other phases have somewhat complex relations that indicate that they are successively younger from (2) to (3) to (4), but that they may also grade into the next youngest phase. Clearly all phases are as closely related in age as they are in chemistry.

Young dykes that cut mineralized veins as well as all phases of the pluton occur in small number. They are mostly quite altered stony fine-grained grey-green amygdaloidal andesites or possibly basalts and are composed of highly sericitized plagioclase and completely chloritized hornblende in a microporphyritic, trachytic texture. Carbonate occurs as an alteration mineral and with quartz in amygdules.

Faulting

A number of diamond-drill holes intersected steep gouge zones of faults of unknown movement. Diamond-drill hole 10N 0W was drilled entirely in gouge. This hole is located along what was previously taken to be a geological contact but now seems to be a steep fault, oriented about north 60 degrees east, possibly dipping north at about 80 degrees. A small fault of similar orientation was observed in outcrop in the northern tributary. The 10N fault appears to cut off the ore zone and may drop it several hundred feet in the north block.

Another probable fault is indicated on the sections by sharp changes of elevation of the bottom of the coarse alaskite sheet. This is interpreted as related to steep faulting evident in drill-hole 8N 8W. The strike of the fault is estimated to be about north 30 degrees east, and the western block is raised about 150 feet relative to the eastern.

Mineralization

Molybdenum mineralization is exposed in quartz veins on Ruby Creek in crowded porphyry. It has been known as a molybdenite occurrence since at least 1905 and was shown on Geological Survey of Canada Map 1082A. It has been staked and dropped repeatedly in recent years, and was relocated by the present company in 1967. Drilling started in the late fall of 1968.

The mineralization is somewhat unusual for in part it consists of very large and spectacular rosettes of molybdenite erratically distributed in otherwise barren quartz veins. Characteristically these veins are nearly flat, dipping about 10 degrees northward. The larger ones are commonly 0.5 centimetre to 1 centimetre thick and have a continuity over at least 25 to 50 feet. These flat veins occur every 4 inches to 2 feet apart with major veins about each foot. The veins may have some drusy cavities lined with clear dark-quartz crystal terminations. Commonly the only metallic mineral is molybdenite, but pyrite may be present in small amounts. Clear yellow powellite is another rare but widely distributed mineral. The molybdenite is found in flattish rosettes up to 1 inch in diameter that tend to occur in clusters in what elsewhere may appear as barren vein. Also present are fractures coated with very fine-grained molybdenite or thin veinlets of quartz and very fine-grained molybdenite. In general, both the dry fractures and thin veinlets strike westerly and dip steeply. In addition the rocks are well jointed with a northerly strike and steep dip most common. Figure 7 is a stereoprojection showing poles to the veins and joints that were measured in the area of the showings. A strong tendency to an orthogonal system is evident in the distribution of the flat veins, westerly dry molybdenite fractures, and northerly joints. In addition, some westerly striking veins dip at moderate attitudes and give a partial girdle with a westerly axis.

Outcrop of sparse porphyry near the western border of ADERA No. 8 claim shows a similar type of mineralization and orientations with the main flat veins dipping gently southward.

In other outcrop areas, pronounced fracture stockwork and a variable quartz stockwork are evident, but little or no molybdenite is present. Minor galena-bearing quartz veins or pyrite, arsenopyrite, quartz veins occur near the contact with the granodiorite in the northern tributary creek.

The large amount of drilling has outlined a mineralized body that roughly parallels the lower contact of the coarse alaskite sheet with mineralization in the lower part of the coarse alaskite sheet and the adjacent sparse or crowded porphyry beneath it. The quartz-monzonite porphyry is either unmineralized or very sparsely mineralized. The mineralized body that may be of economic grade steps downward from being almost entirely in the coarse alaskite sheet in the west to mostly in the porphyries in the east (*see* Fig. 6). The surface projection of the mineralized body is closely similar to the outline of the coarse alaskite and crowded porphyry phases south of the 10N fault.

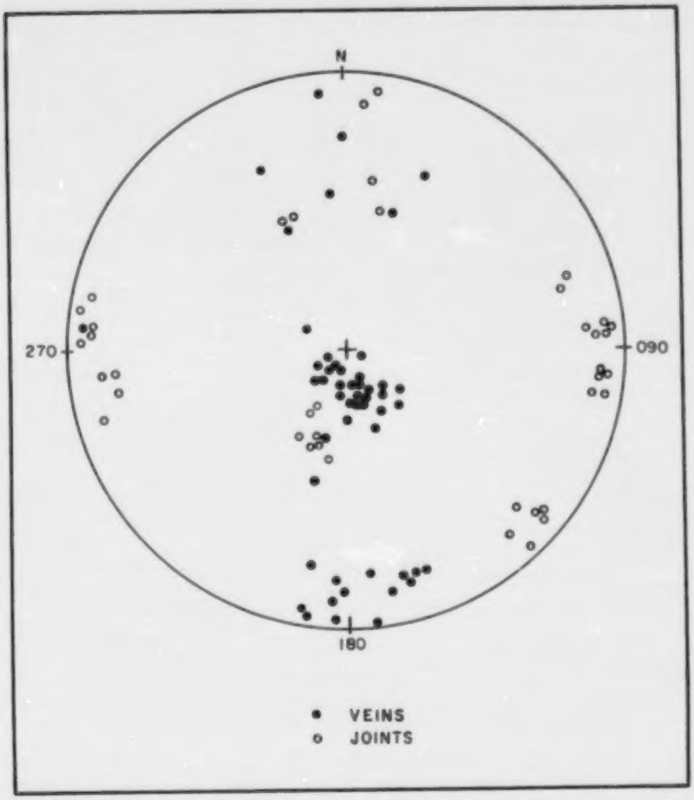


Figure 7. Adanac Mining and Exploration Ltd., lower hemisphere stereoprojection of poles to veins and joints, Ruby Creek mineral showings.

In this zone of better mineralization the pattern evident in the creek showings is seemingly present although the strike orientation is uncertain. However, flat veins up to one-half inch thick and steep, narrow fine-grained quartz-molybdenite veinlets and dry fractures also predominate, and veins and dry fractures of moderate dip also occur.

Alteration in the mineralized zone is relatively slight and includes minor sericitization of plagioclase, and chloritization of biotite. Rarely, some veinlets show narrow envelopes with some potassic flooding. Beyond the mineralized body there exists a halo of greater alteration, but it is rarely intense except adjacent to faults. In the alteration halo, barren quartz, quartz-pyrite veins, and dry pyrite fractures occur. Sericite and chlorite alteration are most intense and the white mica may be fairly coarse. The alteration halo and fracture stockwork extend through the quartz monzonite and sparse porphyries to the limits of the map. Fluorite occurs as a major accessory mineral in much of the alteration halo.

The company has announced that the drilling up to November 15, 1969, has outlined probable mineable reserves of 69,876,000 tons of 0.141 per cent molybdenite. A continuing programme of exploratory drilling plus underground testing and bulk sampling is planned for 1970.

FALUKA, JOMO (No. 126, Fig. 3)

LOCATION: Lat. 59° 41′ Long. 133° 19′ (104N/11W)
On the east side of Ruby Creek, 2 miles north of Surprise Lake.

CLAIMS: FALUKA 1 to 8, JOMO 3, 4, 7, and 8.

ACCESS: By road, 15 miles from Atlin.

OWNER: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, P.O. Box 1500, Asbestos, P.Q.

WORK DONE: A geological map was made of the 12 FALUKA and JOMO claims.

REFERENCE: Assessment Report No. 2039.

BUB (No. 149, Fig. 3)

LOCATION: Lat. 59° 39.7′ Long. 133° 26′ (104N/11W)
On the west side of Boulder Creek, 2 miles north of Surprise Lake.

CLAIMS: BUB 1 to 24.

ACCESS: Twelve miles by road from Atlin.

OWNER: COIN CANYON MINES LTD., 850 West Hastings Street, Vancouver 1.

METALS: Copper, tin, lead.

WORK DONE: A geochemical survey was made and 176 samples collected for analysis.

DESCRIPTION: Cassiterite, chalcopyrite, and galena occur in quartz stringers of a stockwork in greisenized granodiorite.

FOX (No. 162, Fig. 3)

LOCATION: Lat. 59° 44.5′ Long. 133° 22′ (104N/11W)
At elevations up to 6,000 feet on the southeast ridge of Mount Barham.

CLAIMS: FOX 1 to 16.

ACCESS: Twenty-one miles by road from Atlin to the head of Ruby Creek; thence 3 miles by caterpillar road, suitable only for four-wheel-drive vehicles.

OWNER: ARCTIC GOLD AND SILVER MINES LIMITED, P.O. Box 53, Carcross, Y.T.

WORK DONE: Geological and geochemical surveys were made; 167 soil samples were collected for analysis for lead, zinc, and copper.

REFERENCE: Assessment Report No. 2132.

BEAVER, LOON (DEEP BAY) (No. 153, Fig. 3)

LOCATION: Lat. 59° 42′ Long. 133° 52′ (104N/12W)
On the west side of Atlin Lake, 1 mile south of Deep Bay, 12 miles north of Atlin.

CLAIMS: BEAVER 1 to 18, LOON 1 to 7.

ACCESS: By boat from Atlin.

OWNER: JASON EXPLORERS LTD., 775, 555 Burrard Street, Vancouver 1.

METALS: Uranium, molybdenum.

WORK DONE: Six bedrock trenches, total length 220 feet, were excavated.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 24.

NORSK (No. 166, Fig. 3)

LOCATION: Lat. 59° 42′ Long. 133° 46′ (104N/12E, 12W)
On the east side of Atlin Lake, 10 miles north of Atlin.

CLAIMS: NORSK 1 to 10, SALLY No. 1, BALM 1 to 89.

ACCESS: By road from Atlin.

OWNER: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, P.O. Box 1500, Asbestos, P.Q.

METAL: Molybdenum.

WORK DONE: About 20 miles of line was cut and chained for ground control, about 25 claims were geologically mapped in detail, and a scintillometer survey was conducted on the NORSK 1 to 10 and the SALLY No. 1. A geochemical survey was made and 577 samples were collected for molybdenum analysis.

REFERENCES: Assessment Reports Nos. 2118 and 2211.

INKLIN RIVER

LC 1, PETER (No. 131, Fig. 3)

LOCATION: Lat. 58° 20.5′ Long. 132° 42′ (104K/7E)
Seven miles southeast of Tunjony Lake, 85 miles southeast of Atlin.

CLAIMS: LC 1 Nos. 1 to 8, PETER 1 to 8.

ACCESS: By aircraft to Tunjony Lake, 180 miles southeast from Whitehorse, Y.T.; thence by helicopter.

OWNER: GEOPHOTO SERVICES LTD., 706 Sixth Street S.W., Calgary 2, Alta.

METAL: Molybdenum.

WORK DONE: The claims were geologically mapped; an area 350 by 550 feet was trenched and sampled.

REFERENCE: Assessment Report No. 2059.

DESCRIPTION: Fractured quartz diorite and diorite is cut by granitic dykes, quartz veins, and a major shear zone. Molybdenite mineralization is more intense in the areas of greatest fracturing.

LC 2 (No. 132, Fig. 3)

LOCATION: Lat. 58° 24.3′ Long. 132° 47′ (104K/7W)
Two miles southwest of Tunjony Lake, 80 miles southeast of Atlin.

CLAIMS: LC 2 Nos. 1 to 32.

ACCESS: By aircraft to Tunjony Lake, 180 miles southeast of Whitehorse, Y.T.

OWNER: GEOPHOTO SERVICES LTD., 706 Sixth Street S.W., Calgary 2, Alta.

METAL: Copper.

WORK DONE: A topographic map of the claims was prepared. Surface trenching in rock, soil, and stream sediment samples taken for geochemical analysis. Detailed magnetometer and electromagnetic surveys were made in the area of mineralization.

REFERENCE: Assessment Report No. 2060.

DESCRIPTION: Quartz-calcite veins mineralized with chalcopyrite, galena, and sphalerite occur in quartz monzonite in fractures associated with a quartz-porphyry dyke.

SHESLAY RIVER

GO (No. 130, Fig. 8)

By E. W. Grove

LOCATION: Lat. 58° 13′ Long. 131° 42′ (104J/4E)
Along the north side of Hackett River at Copper Creek, 4 miles west of Hatchau Lake.

CLAIMS: GO 1 to 50, 57 to 84.

ACCESS: By helicopter, 27 miles northwest of Telegraph Creek.

OWNER: SKYLINE EXPLORATIONS LTD., 27th Floor, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geological survey of the GO 2, 4, 6, 8 to 14 claims, and 619 soil samples collected from 55,000 feet of picket-lines were analysed for copper, lead, zinc, and silver. This work was conducted by P. H. Sevensma and G. Gutrath. Trenching, line-cutting, sampling, and trail-cutting were supervised by J. Berkosha.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1955, pp. 13, 14; Assessment Report No. 2061.

DESCRIPTION: Copper-bearing mineralization was noted and located on Copper Creek about elevation 2,900 feet in 1955 by F. Callison. The area is generally underlain by Triassic rhyolite to basalt volcanics and volcanic sediments and intruded by granodiorite, diorite, and monzonite stocks, and various dykes. These are overlain by thick Tertiary basalts which form the uplands. Shearing and fracturing is extensive in the country rocks and surface weathering extensive. Mineralization is essentially chalcopyrite, pyrite, and some pyrrhotite associated with epidote-chlorite-actinolite alteration. The country rocks are generally chloritized and weakly serpentinized. Secondary azurite and malachite are visible in altered material along with the primary sulphides, but they are generally leached in the weathered zone. The observed mineralization and the copper anomalies are peripheral to a small granodiorite pluton.

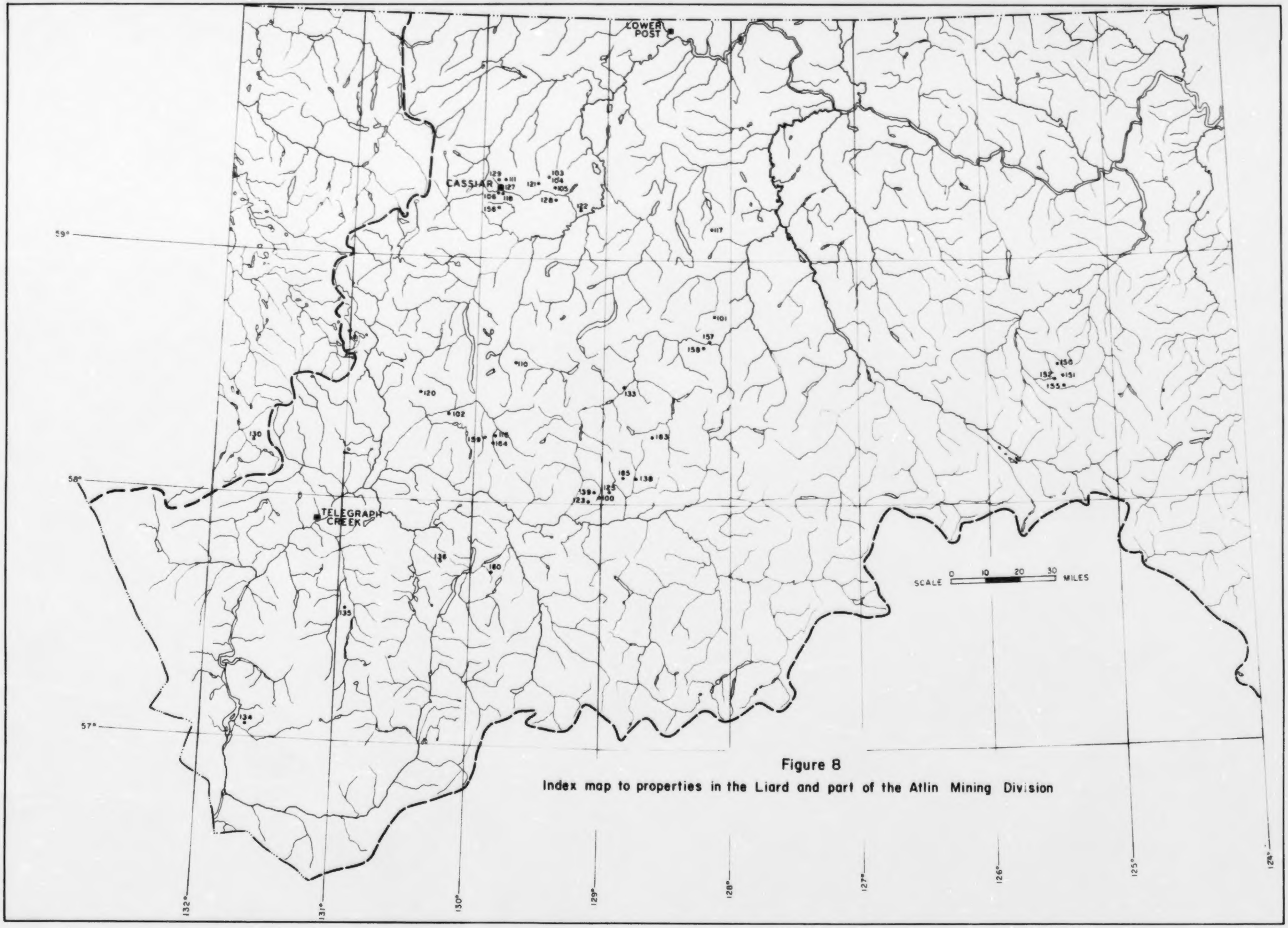

LOWER POST
CASSIAR
TELEGRAPH CREEK
129
111
127
106
118
156
121
103
104
105
128
122
117
101
157
158
110
120
133
102
159
119
164
183
130
185
138
139
125
123
100
136
160
135
134
150
152
151
155
59°
58°
57°
132°
131°
130°
129°
128°
127°
126°
125°
124°
SCALE
0
10
20
30
MILES

Figure 8
Index map to properties in the Liard and part of the Atlin Mining Division

KEY TO PROPERTIES ON INDEX MAP, FIGURE 8

100 HC, CM, page 47.
101 WINCO, page 49.
102 HU, page 44.
103 JOEM, RAIN, page 41.
104 LUNA, page 42.
105 IRON CAP, DOME, page 42.
106 RAY, MOS, page 40.
110 MAC, page 43.
111 CASSIAR ASBESTOS MINE, page 379.
116 FORD, page 44.
117 DEBBIE, page 49.
118 SILVER QUEEN, page 41.
120 MACK (SNOW PEAK PROPERTY), page 44.
121 AL, page 42.
122 ATAN, page 43.
123 JOY, BOW, page 47.
125 KAC, page 47.
127 CAC, page 40.
128 RAM, page 42.
129 CONTACT, page 40.
130 GO, page 38.
133 TURN, page 49.
134 RM, page 46.
135 SNO, BIRD (LIARD COPPER), page 46.
136 QC, QCA, page 45.
138 BO, page 48.
139 STAR, page 46.
150 DAVIS-KEAYS, page 51.
151 MAGNUM (CHURCHILL COPPER), page 50.
152 JOHN, page 51.
155 LADY LUCK, page 50.
156 ELOISE, X, RUSTY, page 41.
157 EWE, page 48.
158 WOLF, page 48.
159. KING, page 45.
160 MONEY, page 45.
163 WT, page 49.
164 MOSS, page 44.
165 CLEO, page 48.

LIARD MINING DIVISION

CASSIAR–STEWART ROAD

Cassiar

CONTACT (No. 129, Fig. 8)

Location: Lat. 59° 19.3′ Long. 129° 52.2′ (104P/5W)

Two miles northwest from Cassiar at elevation of 5,500 to 6,000 feet.

Claims: CONTACT 3, HD 1 and 2, PAE 7, 16 to 23, TAC 1 to 16.

Access: Three miles by road from Cassiar.

Owner: CONTEX SILVER MINES LTD., 1202, 1177 West Hastings Street, Vancouver 1.

Metals: Silver, lead, zinc, copper, molybdenum, bismuth.

Work Done: Four trenches totalling 300 feet were bulldozed, a quarter of a mile of access road was built, and seven holes totalling 1,017 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Rept., 1955, p. 10; *Geol. Surv., Canada,* Mem. 319, p. 119.

Description: (1) Quartz veins in porphyritic granite are mineralized with pyrite, bismuthinite, molybdenite, scheelite, and cosalite; (2) quartz veins in marmorized limestone are mineralized with molybdenite, pyrrhotite, arsenopyrite, chalcopyrite, tetrahedrite, native antimony, bismuthinite, native silver, pyrargyrite, and marcasite; and (3) andradite-scapolite skarn in marmonized limestone is mineralized with pyrrhotite, marcasite, and chalcopyrite.

CAC (No. 127, Fig. 8)

Location: Lat. 59° 16.8′–18.8′ Long. 129° 49′–52.5′ (104P/5W)

At Cassiar townsite, between elevations of 3,500 and 5,700 feet.

Claims: CAC 1 to 50.

Owner: CASSIAR ASBESTOS CORPORATION LIMITED, Cassiar.

Work Done: A topographic map of the claims was made, the geology was mapped, and an airborne magnetometer survey was made.

Reference: Assessment Report No. 2168.

RAY, MOS (No. 106, Fig. 8)

Location: Lat. 59° 16′ Long. 129° 50′ (104P/5W)

At elevation 5,600 feet, 1½ miles southwest of Cassiar.

Claims: RAY 1 and 2, 5 to 8; MOS 1 to 6; DOM, FALL, and others totalling 50.

Access: By 1½ miles of road from Cassiar.

Owner: CHAPPARAL MINES LTD., 428, 470 Granville Street, Vancouver 2.

Metals: Molybdenum, silver, lead, zinc.

Work Done: Geology of some claims was mapped; an aeromagnetic survey of all claims was made; 540 soil samples were taken for geochemical analysis; and one hole, length 469 feet, was diamond drilled. P. H. Sevensma, consultant.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 35; Assessment Report No. 1962.

SILVER QUEEN (No. 118, Fig. 8)

Location: Lat. 59° 15.5′ Long. 129° 50′ (104P/5W)
On Marble Creek, 3 miles south of Cassiar.

Claims: SILVER QUEEN 1 to 8 and about 175 other claims extending southeast from Marble Creek toward Vines Lake.

Access: By road up Marble Creek from the Cassiar road.

Owner: Montreal Trust Co. Ltd.

Operator: COAST SILVER MINES LTD., 660, 890 West Pender Street, Vancouver 1.

Metals: Silver, lead, zinc, copper, molybdenum.

Work Done: An area of approximately 50 square miles was flown along east-west lines one-eighth mile apart, a total of 302 line-miles, during the course of an aeromagnetic survey made by Seigel Associates, Ltd. Other work included ground magnetometer, 15 line-miles; soil sampling, 1,471 samples; five bulldozer trenches, 500 feet total; and 50 BQ and NQ core holes, 15,040 feet total.

References: Assessment Report No. 1990; *Geol. Surv., Canada,* Mem. 319, p. 120; *Minister of Mines, B.C.,* Ann. Rept., 1955, p. 10; 1967, pp. 26, 27.

ELOISE, X, RUSTY (No. 156, Fig. 8)

By A. D. Tidsbury

Location: Lat. 59° 12′ Long. 129° 52′ (104P/4W)
At the head of Lang Creek, 5 miles south-southeast of Cassiar, between elevations of 4,500 and 6,700 feet.

Claims: Two hundred and three claims, including the HAZEL, ELOISE, RUSTY, TAIL, X, VI, WRANGLER, and LILLIAN groups.

Access: By 8 miles of access road from Simmons Lake, on the Cassiar–Stewart Highway.

Owner: VALUE LINE MINERALS LTD., 203, 415 Third Street S.W., Calgary 1, Alta.

Metals: Molybdenum, copper.

Work Done: Twenty-three men were employed for an average of three months. The exploration adit was driven a further distance of 805 feet and four holes totalling 1,500 feet were diamond drilled. Detailed geological mapping was done and a geochemical survey over the area of interest was completed. Work was under the direction of P. O. Paulson, company geologist.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 36.

Description: The main showings are on the X 17 and X 19 claims, where rosettes of molybdenite and chalcopyrite occur in feldspathized quartz monzonite and latite.

JOEM, RAIN (No. 103, Fig. 8)

Location: Lat. 59° 20′ Long. 129° 28.5′ (104P/6W)
At about elevation 5,000 feet, near the summit of Mount Haskin.

Claims: JOEM 1 to 7, RAIN 1 and 2, ANDY 1 to 74, DAKO 1 to 34, and others totalling 165 in all grouped as the DELLA, MOM-RAIN groups. The original JOEM and RAIN claims were located by Emil Krysko in July, 1961.

Owner: DELLA MINES LTD., 1307, 1030 West Georgia Street, Vancouver 5.

Metals: Copper, lead, zinc, molybdenum.

Work Done: Topographic and geologic maps were made; surface workings were surveyed; four trenches, total length 1,500 feet, were bulldozed on JOEM 4 claim; 40 holes totalling 19,551 feet were diamond drilled. Work was supervised by G. L. Lamont, geologist.

LUNA (No. 104, Fig. 8)

Location: Lat. 59° 19.7′ Long. 129° 28′ (104P/6W)

Between elevations of 4,500 and 6,000 feet, about 2 miles southeast of the peak of Mount Haskin.

Claims: Eight claims, LUNA 1 to 6, 9 and 10.

Access: Three to 4 miles by trail north of the Cassiar road at Mile 69.

Owner: BARTLE EXPLORATIONS LTD., 360 Raymond Avenue, Richmond.

Metals: Silver, lead, zinc.

Work Done: Four trenches, total length 300 feet, and three pits, 6 feet deep, were dug by hand.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 36.

Description: Galena-sphalerite replacement in limestone.

IRON CAP, DOME (No. 105, Fig. 8)

Location: Lat. 59° 17.5′ Long. 129° 25′ (104P/6W)

North side of McDame Creek, at elevation of 4,000 to 5,000 feet and about 1 mile west of the First North fork.

Claims: IRON CAP 7 and 8, DOME 1 to 76, AG MAMBA, and others.

Access: By an 8-mile access road branching from the Cassiar road east of Hot Creek.

Operator: BRETTLAND MINES LTD., 909, 709 West Pender Street, Vancouver 1; P. E. Hirst, geological consultant.

Metals: Silver, lead, zinc.

Work Done: A claim map was made, the geology was mapped, induced polarization and magnetometer surveys were made, and 2,500 soil and silt samples were collected for geochemical analysis. Five trenches, total length 1,000 feet, were bulldozed in overburden. Two open cuts were bulldozed and about 1,000 feet of trenching in bedrock was done.

References: *Geol. Surv., Canada*, Mem. 319, p. 114; *Minister of Mines, B.C.*, Ann. Rept., 1956, p. 11; Assessment Report No. 2228.

AL (No. 121, Fig. 8)

Location: Lat. 59° 18′ Long. 129° 33′ (104P/5E)

At elevation 4,600 to 5,000 feet and 1½ miles southwest of Hot Lake.

Claims: AL 1 to 7, formerly LUCKY SHOT.

Access: By 1¾ miles of trail from the Cassiar road.

Owner: TOURNIGAN MINING EXPLORATIONS LTD., P.O. Box 3859, Vancouver 9.

Metals: Copper, nickel.

Work Done: Surface workings were surveyed and geologically mapped.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 35.

Description: Chalcopyrite and pentlandite occur as disseminations and vein fillings in Sylvester volcanic and sedimentary rocks.

RAM (No. 128, Fig. 8)

Location: Lat. 59° 14.5′ Long. 129° 24.5′ (104P/3W)

At elevation 4,600 feet on the northwest side of Mount Pendleton, 3 miles south of Centreville.

CLAIMS: RAM 1 to 4, EWE 1 to 4, SOL 1 to 22, LATE 5 to 16, COLD 1 to 14.

ACCESS: Three miles by road south from Centreville on the Cassiar road.

OWNER: FAWN BAY DEVELOPMENT LTD., 1111, 409 Granville Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE: The claims and surface workings were mapped; geology of the RAM, SOL, LATE, and COLD groups was mapped; and 340 soil samples were taken for geochemical analysis. Two trenches, total length 800 feet, were bulldozed to bedrock, 1,200 square feet of bedrock was stripped, and five holes totalling 790 feet were diamond drilled.

DESCRIPTION: Quartz veins in argillite are mineralized with tetrahedrite.

ATAN (No. 122, Fig. 8)

LOCATION: Lat. 59° 12′ Long. 129° 12′ (104P/3E)

One and one-half miles northeast of McDame Post, elevation 2,500 feet.

CLAIMS: ATAN, ADAIR, SKI, AUGUST, FOX, totalling 57 claims, formerly known as the CARLICK.

ACCESS: By 11 miles of four-wheel-drive road from the Cassiar road.

OWNER: TOURNIGAN MINING EXPLORATIONS LTD., P.O. Box 3859, Vancouver 9.

METALS: Silver, lead, zinc, copper.

WORK DONE: A topographic map of the property was made and the surface workings were surveyed and geologically mapped. Six trenches, total length 2,360 feet, were bulldozed in overburden, two open cuts were made, and about 60,000 square feet of bedrock was stripped. Two bedrock trenches, total length 950 feet, were excavated; 7 miles of road was built; and four holes, total length 1,375 feet, were diamond drilled. The work was done to explore geochemical and geophysical anomalies found through surveys made in 1968.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 35; Assessment Report No. 1813.

EAGLE RIVER

MAC (No. 110, Fig. 8)

LOCATION: Lat. 58° 34′ Long. 129° 04′ (104I/11E)

At elevation 5,000 feet, between Eagle and Little Eagle Rivers, 7 miles north of the winter road at Goldpan Creek.

CLAIMS: MAC 1 to 16.

ACCESS: By float plane from Dease Lake, 11 miles to the west.

OWNER: JUPITER EXPLORATIONS LTD., 1614, 1030 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Ten miles of line on the MAC 1 to 4 claims was covered by an electromagnetic survey and 60 soil samples were taken for geochemical analysis for copper and mercury. M. A. Roed, consultant.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 28; Assessment Report No. 1105.

DESCRIPTION: Massive chalcopyrite, pyrrhotite, and pyrite occur along the contact between granodiorite and marble.

TANZILLA RIVER

HU (No. 102, Fig. 8)

LOCATION: Lat. 58° 21′ Long. 130° 13′ (104J/8E)
At elevation 4,000 feet on the south side of Tanzilla River, 10 miles southwest of the south end of Dease Lake.

CLAIMS: HU 1 to 62.

ACCESS: By helicopter from Dease Lake.

OWNER: Tournigan Mining Explorations Ltd.

OPERATOR: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: Sixteen claims were geologically mapped and 22 trenches, total length 7,970 feet, were bulldozed. Nine miles of road was built south from the Telegraph Creek road.

DESCRIPTION: Pyrite and chalcopyrite are disseminated through a syenite intrusion.

MACK (SNOW PEAK PROPERTY) (No. 120, Fig. 8)

LOCATION: Lat. 58° 27′ Long. 130° 26′ (104J/8W)
At elevation 5,500 feet on the south side of Snow Peak, 14 miles west of the south end of Dease Lake.

CLAIMS: MACK 1 to 28.

ACCESS: By helicopter from Dease Lake.

OWNER: TOURNIGAN MINING EXPLORATIONS LTD., P.O. Box 3859, Vancouver 9.

METALS: Copper, molybdenum.

WORK DONE: The geology of the claims was mapped.

DESCRIPTION: Molybdenite and chalcopyrite are disseminated and in quartz veinlets in fractures in quartz monzonite and quartz-feldspar porphyry.

GNAT CREEK

MOSS (No. 164, Fig. 8)

LOCATION: Lat. 58° 15′ Long. 129° 51′ (104I/4W, 5W)
On the west side of Lower Gnat Lake.

CLAIMS: Sixty-seven claims, comprising the MOSS group.

ACCESS: By Cassiar–Stewart road about 20 miles south of Dease Lake.

OWNER: LYTTON MINERALS LIMITED, 519, 602 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: The geology of the property was remapped and some sampling done; 12 trenches, total length 8,900 feet, were bulldozed.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 27; Assessment Report No. 116.

FORD (No. 116, Fig. 8)

LOCATION: Lat. 58° 16.5′ Long. 129° 50′ (104I/5W)
On the east side of the Cassiar road north of the Gnat Lakes; lies immediately north of Lytton Minerals Limited's June and Stikine claims.

CLAIMS: FORD 17 to 20, 27 to 32.

ACCESS: By Cassiar–Stewart road, 16 miles south from Dease Lake.

Owner: SPARTAN EXPLORATIONS LTD., 303, 1035 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: The company made a magnetometer survey of the claims.

Reference: Assessment Report No. 1891.

Description: No mineralization has been found on the claims.

KING (No. 159, Fig. 8)

Location: Lat. 58° 16′ Long. 129° 55′ (104I/5W)
At elevation of 4,000 to 5,000 feet on the west side of Gnat Creek.

Claims: KING 1 to 10, 21 to 30, 61 to 86; BOX 1 to 10; KAY 29 to 74.

Access: By the Cassiar–Stewart road, 95 miles south of Cassiar.

Owner: TANZILLA EXPLORATIONS LTD., c/o Edgewater Hotel, Whitehorse, Y.T.

Metal: Copper.

Work Done: A grid totalling 17 line-miles was cut and picketed, geological and magnetometer surveys were made, 463 samples were collected for a geochemical survey.

Reference: Assessment Report No. 2152.

Description: Copper-bearing float is observed in an area of scarce outcrops, only a single outcrop of low-grade copper mineralization is known on the KAY 49 claim.

Kinaskan Lake

QC, QCA (No. 136, Fig. 8)

Location: Lat. 57° 45′ Long. 130° 17′ (104G/9W, 16W)
On the south side of Quash Creek, 8 miles northwest of the head of Kinaskan Lake, about elevation 5,200 feet.

Claims: Total of 76 claims, including QC and QCA groups.

Access: From Dease Lake by helicopter about 50 miles.

Owner: CONWEST EXPLORATION COMPANY LIMITED, Tenth Floor, 85 Richmond Street West, Toronto 1, Ont.

Metals: Copper, molybdenum.

Work Done: On the QC 23, 25, and 41 to 44 claims, geological mapping at 1 inch equals 200 feet was done, a magnetometer survey along 4.3 line-miles was done, and a geochemical survey including soil, silt, and rock samples was undertaken.

References: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 41; Assessment Reports Nos. 701 and 2237.

Description: An apparent porphyry copper type of mineralization with disseminated pyrite, chalcopyrite, and molybdenite in altered granodiorite and andesitic volcanics.

MONEY (No. 160, Fig. 8)

Location: Lat. 57° 41.5′–43′ Long. 129° 50′–53′ (104H/12W)
Elevation of 3,000 to 5,000 feet, 4 miles south of Ealue Lake.

Claims: MONEY 1 to 72.

Access: By helicopter from Dease Lake.

Owner: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

METALS: Copper, silver.

WORK DONE: The geology of the claims was mapped and samples were collected for geochemical analysis for copper and molybdenum.

REFERENCES: Assessment Reports Nos. 2164 and 2165.

STIKINE RIVER

PORCUPINE RIVER

RM (No. 134, Fig. 8)

LOCATION: Lat. 57° 03′ Long. 131° 39′ (104G/4E)
On the north side of Porcupine River, 3 miles east of its junction with the Stikine River.

CLAIMS: RM 1 to 10.

ACCESS: By river boat from Wrangell, Alaska, during the summer or by aircraft from Terrace.

OWNER: HONDA MINING CO. LTD., 540 Seymour Street, Vancouver 2.

WORK DONE: Airborne magnetometer, electromagnetic, and nucleometer surveys were made over 18 line-miles on the claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 4; Assessment Report No. 2057.

MESS CREEK

SNO, BIRD (LIARD COPPER) (No. 135, Fig. 8)

LOCATION: Lat. 57° 21′ Long. 130° 56′ (104G/7W)
Thirty-six miles south of Telegraph Creek east of the junction of Hickman Creek with Schaft Creek, between elevations 3,000 and 4,500 feet.

CLAIMS: Three hundred and twenty-four claims located as the BIRD, SNO, ID, NOV, GAV, BUD, PIL, SUE, ASH, WIN, RUM, VON, EMU, and NABS groups.

ACCESS: All transport was through Stewart, 115 miles to the south.

OWNERS: Hecla Operating Company, 191 claims; Liard Copper Mines Ltd., 94 claims; Paramount Mining Ltd., 39 claims.

OPERATOR: HECLA OPERATING COMPANY, 2009, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Partial legal survey 1 inch equals 1,000 feet; geological map, 324 claims, 1 inch equals 1,000 feet; 12 trenches, 2,000 feet, cut by DC-6 caterpillar; and nine NQ core holes totalling 15,501 feet.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 39, 40.

KEHLECHOA RIVER

STAR (No. 139, Fig. 8)

LOCATION: Lat. 58° 03.5′ Long. 129° 02′ (104I/3E)
About 50 miles southeast of Dease Lake, 10 miles north of Stikine River, and 5 miles east of McBride River, between elevation of 4,000 to 5,500 feet.

CLAIMS: Seventy STAR claims.

ACCESS: From Dease Lake by helicopter.

OWNER: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

Metal: Copper.

Work Done: Geological mapping of the claim group at 1 inch equals 1,000 feet; trenching on the No. 1 showing.

Reference: Assessment Report No. 2154.

Description: Scattered chalcocite and malachite mineralization has been localized along shears and fractures which transect folded Upper Triassic volcanics and crosscutting dykes.

HC, CM (No. 100, Fig. 8)

Location: Lat. 58° 01′ Long. 128° 59′ (104I/2W, 3E)

Elevation 5,500 feet, between McBride and Kehlechoa Rivers, 17 miles south-southeast of Turnagain Lake.

Claims: Eight HC and 18 CM claims.

Access: By helicopter, 50 air-miles southeast of Dease Lake.

Owner: PELLY COPPER CORPORATION LTD., 1500, 675 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Ten miles of line was cut and a geological survey of the 26 claims was made by R. B. Allen. The main showings are on the HC No. 4 and the CM No. 14 claims.

Reference: Assessment Report No. 1963.

Description: Chalcocite and bornite occur disseminated and along fractures in silicified zones in tuff.

KAC (No. 125, Fig. 8)

Location: Lat. 58° 03.5′ Long. 128° 56′ (104I/2W)

At about elevation 5,000 feet, between McBride and Kehlechoa Rivers, 48 miles southeast of Dease Lake. The claims were located on the northeasterly projection of copper showings on the CM group.

Claims: KAC 1 to 48.

Access: By aircraft from Dease Lake.

Owner: R. C. Coutts, West Vancouver.

Operator: SILVER-X INTERNATIONAL MINES LTD., 1424, 355 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: A geochemical survey of the KAC 1 to 24 claims was made; 1,015 samples were analysed for copper and zinc.

Reference: Assessment Report No. 2040.

JOY, BOW (No. 123, Fig. 8)

Location: Lat. 58° 01′ Long. 129° 07′ (104I/3E)

At elevations of 4,000 to 7,000 feet on the range east of McBride River and northeast of Mount Sister Mary.

Claims: JOY, BOW, SEC, SUE, PET, GD, PAY, *et al.*, totalling 454 in number.

Access: By aircraft, 45 miles southeast from Dease Lake.

Owner: BOWSER RESOURCES LTD., 102, 2222 Bellevue Avenue, West Vancouver.

Metal: Copper.

Work Done: All the claims were geologically mapped on a half-mile scale and the JOY, SEC, and SUE were mapped in more detail; 10 trenches totalling 276 feet were excavated in bedrock; about 50,000 feet of bulldozer trenching was done; and 509 soil samples were taken for geochemical analysis.

Description: Chalcopyrite, pyrite, and some magnetite occur in granite and granitic hybrid rocks in a porphyry copper type of occurrence.

BO (No. 138, Fig. 8)

Location: Lat. 58° 07′ Long. 128° 45′ (104I/2W, 2E) Along Kehlechoa River, north of Stikine River.

Claims: BO 1 to 100.

Access: About 50 miles by helicopter from Dease Lake.

Owner: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

Work Done: Geological survey of the claim group at 1 inch equals 1,000 feet; 450 soil and silt samples.

Description: Geologic mapping of Upper Triassic andesitic volcanics and conglomerate revealed no economic mineralization.

CLEO (No. 165, Fig. 8)

Location: Lat. 58° 07′ Long. 128° 50′ (104I/2W) At elevations of 4,200 to 4,700 feet at the head of Kehlechoa River.

Claims: CLEO 1 to 46 were located to cover an aeromagnetic anomaly.

Access: By helicopter from Watson Lake.

Owner: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 1000, 1055 West Hastings Street, Vancouver 1.

Work Done: A geochemical survey was made and 675 soil samples were collected and analysed for copper.

Reference: Assessment Report No. 2130.

TURNAGAIN RIVER

WOLF (No. 158, Fig. 8)

Location: Lat. 58° 37′–40′ Lat. 128° 13′–14′ (104I/9E) On the south side of Turnagain River, 4 miles west of the junction of Cassiar River.

Claims: WOLF 1 to 20, KID 1 to 6, WINKLE 1 to 20.

Access: By helicopter from Watson Lake.

Owner: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.

Metal: Tungsten.

Work Done: Surface workings were mapped and nine trenches, total length 350 feet, were dug by hand to bedrock.

Description: Veins in quartzite are mineralized with scheelite.

EWE (No. 157, Fig. 8)

Location: Lat. 58° 40′ Long. 128° 06′–14′ (104I/9E) Elevation 6,000 feet, on the north side of Turnagain River west of the junction of Cassiar River.

Claims: EWE 1 to 20, SNO 1 to 22, HUB 1 to 10, RAM 15 to 20.

Access: By helicopter from Watson Lake.

Owner: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.
Metal: Tungsten.
Work Done: Surface showings were mapped and the geology mapped; two trenches, length 245 feet, excavated in bedrock; and six holes totalling 3,143 feet diamond drilled.
Description: Scheelite occurs in limestone skarn.

TURN (No. 133, Fig. 8)

Location: Lat. 58° 28.5′ Long. 128° 50′ (104I/7W)
On Turnagain River, 2 miles northeast of Hard Creek.
Claims: TURN 1 to 76, PYRRHOTITE, COBALT.
Access: By helicopter or aircraft from Dease Lake, 40 miles to the west.
Operator: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
Metals: Copper, nickel.
Work Done: Airborne magnetometer and electromagnetic surveys were made of a 52-square-mile area centring on the TURN claims.
References: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 28; Assessment Report No. 2056.

WT (No. 163, Fig. 8)

Location: Lat. 58° 17′ Long. 128° 37′ (104I/7E)
Five miles east of Letain Lake.
Claims: WT 1 to 22, 37 to 54.
Access: By helicopter from Watson Lake.
Owner: KATANGA MINES LTD., 31, 615 West Hastings Street, Vancouver 2.
Work Done: About 19 miles of line was cut and picketed preparatory to further work.
Reference: Assessment Report No. 2131.

WINCO (No. 101, Fig. 8)

Location: Lat. 58° 46′ Long. 128° 07.5′ (104I/16E)
At elevation 5,500 feet, near the head of Blue Sheep Creek, a tributary of Major Hart River.
Claims: WINCO 1 to 48.
Access: By helicopter from Watson Lake.
Owner: WINCO MINING AND EXPLORATION LTD., 1108, 1111 West Hastings Street, Vancouver 1.
Metals: Copper, gold, silver.
Work Done: Four claims were mapped geologically by P. H. Sevensma, and an airborne magnetometer survey was made of the 48-claim group.

DEADWOOD LAKE

DEBBIE (No. 117, Fig. 8)

Location: Lat. 59° 08′ Long. 128° 09′ (104P/1E)
At elevations of 4,000 to 5,000 feet, 8 miles northeast of the south end of Deadwood Lake.
Claims: DEBBIE 1 to 18.
Access: By helicopter, 55 miles south of Lower Post.

OWNER: EMPEROR MINES LTD., 1108, 1111 West Hastings Street, Vancouver 1.

WORK DONE: An airborne magnetometer survey of the claims (22 line-miles of flying) was done by Geo-X Surveys Ltd.

REFERENCE: Assessment Report No. 1948.

ALASKA HIGHWAY

RACING RIVER

MAGNUM (CHURCHILL COPPER) (No. 151, Fig. 8) By A. D. Tidsbury

LOCATION: Lat. 58° 30.7′ Long. 125° 24′ (94K/11W)

At the headwaters of Delano Creek, between elevations of 5,100 and 6,700 feet.

CLAIMS: Fifty-eight claims, including the ME, DAN, MAC, and HI groups.

ACCESS: By 35 miles of road, southwest from the Alaska highway at Mile 401.

OWNER: CHURCHILL COPPER CORPORATION LTD., 401, 1111 West Hastings Street, Vancouver 1; D. Hogarth, resident engineer.

METAL: Copper.

WORK DONE: An average daily work force of 100 men completed the rebuilding of 35 miles of access road, an airstrip, and a temporary mine-site camp and facilities. Underground development included 7,850 feet of drifting, 1,450 feet of raising, and stope preparation totalling 1,260 feet of drifting with 600 feet of raising. There was 5,000 tons of broken ore in new stopes. Diamond drilling totalled 12,400 feet underground and 4,160 feet on surface. A contractor work force of 100 plus nearly completed construction of a rated 750-tons-per-day flotation concentrator, located 13 miles by road from the minesite. The capacity of the diesel-driven generating equipment at the mine camp and concentrator construction camp is 265 kva. At the present time there are mine fans requiring 70 horsepower, two locomotive battery-charging rectifiers, and freshwater pumps requiring 30 horsepower.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1959, p. 21; 1967, pp. 25, 26; 1968, p. 34.

LADY LUCK (No. 155, Fig. 8)

LOCATION: Lat. 58° 28′ Long. 125° 24′ (94K/6W)

On the west side of the north branch of Delano Creek.

CLAIMS: LADY LUCK 1 to 12, LOLI 1 and 2.

ACCESS: By a 1½-mile access road branching to the south from the Churchill road at the Churchill Copper mine-site.

OWNER: LARGO MINES LTD., 1110, One Bentall Centre, Vancouver 1.

METAL: Copper.

WORK DONE: Up to 13 men employed for two months. Geological mapping and sampling of approximately 1,000 feet of underground exploratory drift and crosscuts.

DESCRIPTION: Quartz-carbonate veins partially exposed on precipitous cliff faces carry chalcopyrite.

JOHN (No. 152, Fig. 8)

LOCATION: Lat. 58° 30.2′ Long. 125° 28′ (94K/11W)
Elevation 5,500 feet, at the head of Ringarooma Creek, 2½ miles west of the Magnum mine.

CLAIMS: JOHN 1 to 10.

ACCESS: Three miles of tote road to the Magnum camp.

OWNER: CHURCHILL COPPER CORPORATION LTD., Seventh Floor, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Some detailed geological mapping was done on one of the claims and three trenches, total length 500 feet, were bulldozed.

REFERENCE: Assessment Report No. 1892.

DESCRIPTION: Quartz-carbonate veins mineralized with chalcopyrite associated with fine-grained diabase dykes in grey Proterozoic shales.

TOAD RIVER

DAVIS-KEAYS (No. 150, Fig. 8)

By A. D. Tidsbury

LOCATION: Lat. 58° 33′ Long. 125° 26.3′ (94K/11W)
At the head of the south branch of Yedhe Creek, between elevations of 6,100 and 7,300 feet.

CLAIMS: BONANZA, EAGLE, LOIS, DK, GER, and others totalling 398.

ACCESS: Twenty-five miles by road from Mile 437.6, Alaska highway.

OWNER: DAVIS-KEAYS MINING CO. LTD., 806, 1111 West Hastings Street, Vancouver 1; mine address, P.O. Box 300, Fort Nelson; George Dvorak, manager.

METAL: Copper.

WORK DONE: Surface and underground workings mapped. Three adits driven and 8,048 feet of crosscutting, drifting, and raising; surface diamond drilling in 11 BQ holes—2,732 feet on the Harris vein and 3,083 feet on the Keays vein—and 3,478 feet of underground diamond drilling in 16 AQ holes on the Eagle vein. Four permanent camp buildings were completed—a bunkhouse-recreation hall, bunkhouse-cookhouse, mine dry, and powerhouse. A 2,900-foot airstrip and a 25-mile access road with three bridges were built. Two 30-kva. diesel-driven generators supply power for the camp and mine ventilation. Two 15-horsepower fans ventilate the mine. Three Lister diesels of 7-, 11-, and 27.5-kw. respectively supply power for mine heaters. A 75-kva. Buda was installed as a standby unit.

REFERENCE: Assessment Report No. 1128.

DESCRIPTION: Quartz-carbonate veins mineralized with chalcopyrite are associated with northeasterly trending diabase dykes.

Plate IIA.—Looking northward down Eagle Creek toward its junction with Yehde Creek, road to Davis-Keays camp is on the west side of the creek.

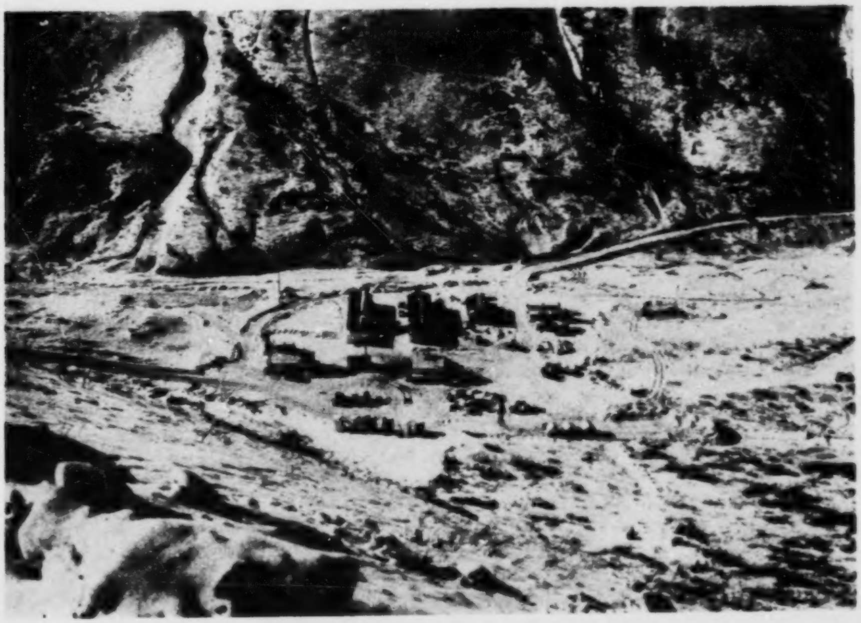


Plate IIB.—Davis-Keays camp on Eagle Creek.

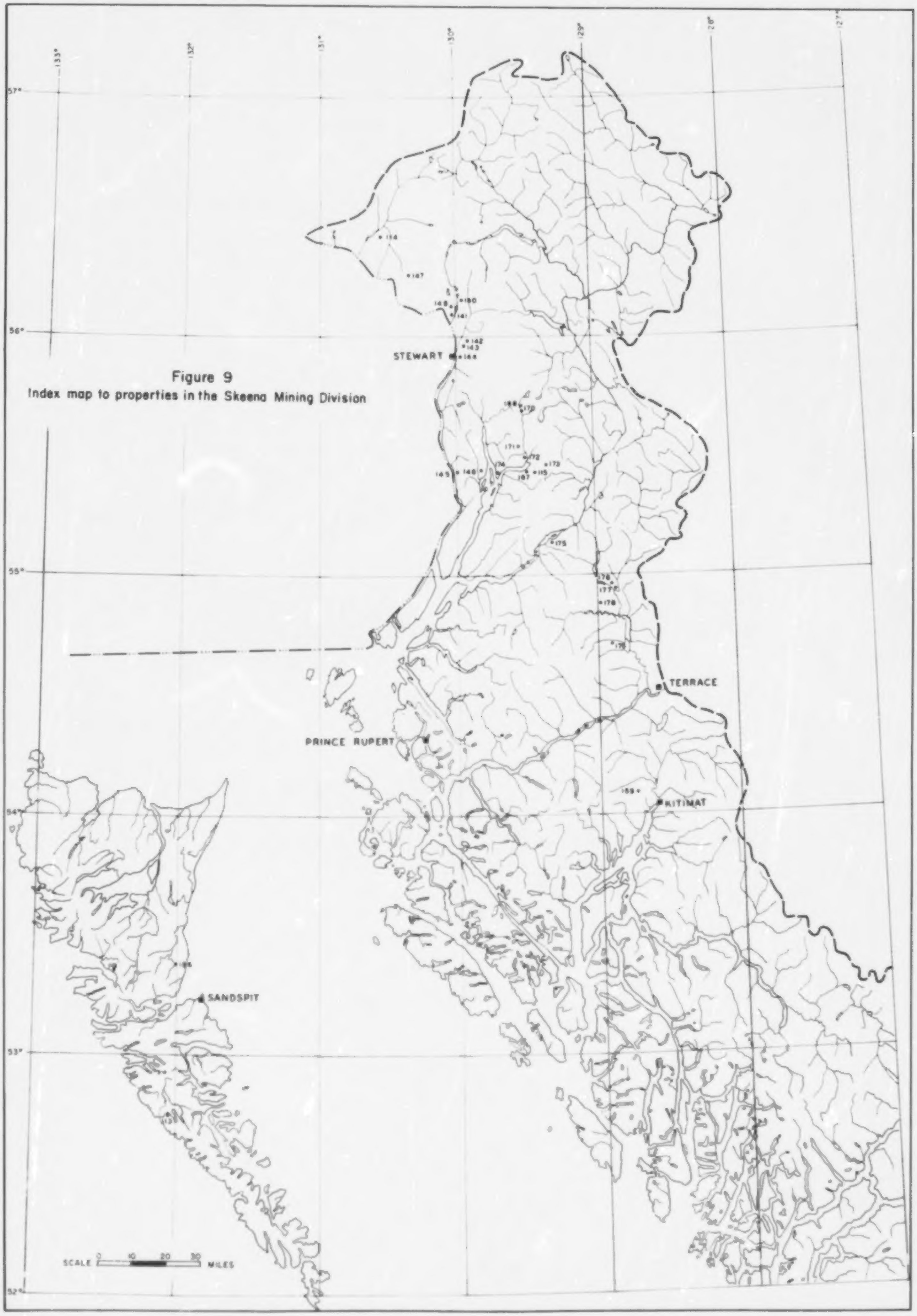

133°
132°
131°
130°
129°
128°
127°
57°
56°
55°
54°
53°
52°
STEWART
TERRACE
PRINCE RUPERT
KITIMAT
SANDSPIT
114
147
180
140
141
142
143
144
168
170
171
172
173
174
145
146
167
115
175
176
177
178
179
159
SCALE 0 10 20 30 MILES

Figure 9
Index map to properties in the Skeena Mining Division

KEY TO PROPERTIES ON INDEX MAP, FIGURE 9

113 TASU MINE, page 73.
114 MAX, page 54.
115 BRITISH COLUMBIA MOLYBDENUM MINE, page 69.
119 NRM, page 73.
124 MINO, page 72.
140 SILVER CROWN, page 57.
141 SILBAK PREMIER MINE, page 56.
142 LITTLE JOE, GYPSY, page 57.
143 SWAN, page 58.
144 SILVERADO, PROSPERITY, PORTER IDAHO, page 58.
145 MAPLE BAY, page 59.
146 CD, CU, page 59.
147 GRANDUC MINE, page 54.
148 BIG MISSOURI, page 57.
167 ROUNDY CREEK, page 68.
168 DOLLY VARDEN, NORTH STAR, TORIC, WOLF, page 60.
169 BOWBYES, page 72.
170 TIGER, page 60.
171 LA ROSE, SPECULATOR No. 2, BUNKER HILL, page 63.
172 ESPERANZA, ALICE, page 64.
173 MOLY, page 69.
174 HAYWIRE, page 67.
175 KAY, page 69.
176 HOPE SILVER, page 70.
177 LOU, page 71.
178 MACEX, page 71.
179 QUARTZ SILVER, page 71.

SKEENA MINING DIVISION

UNUK RIVER

MAX (No. 114, Fig. 9)

Location: Lat. 56° 25′ Long. 130° 32′ (104B/7E)
On the west side of McQuillan Ridge between elevations 1,500 feet and 5,000 feet.

Claims: DAN 1 to 22, JIM 1 to 22.

Access: Reached from Stewart by helicopter, a distance of 50 miles.

Owner: GRANDUC MINES, LIMITED, 2009, 1177 West Hastings Street, Vancouver 1.

Metals: Copper, iron.

Work Done: Geological map of the 44 claims at 1 inch equals 400 feet; 25 line-mile magnetometer survey; reconnaissance silt sampling.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 8.

Description: Skarn-type mineralization including magnetite, pyrrhotite, and chalcopyrite localized within folded lenticular Triassic limestone near the margin of an irregular quartz diorite stock. The limestone lenses occur within an essentially sedimentary sequence cut by stocks, numerous dykes, and by the younger Coast Range intrusions.

PORTLAND CANAL

Tide Lake Flats

By H. Bapty

GRANDUC MINE (No. 147, Fig. 9)

Location: Lat. 56° 13′ Long. 130° 21′ (104B/1W)
At the head of the Leduc River, 25 miles northwest of Stewart between elevations 2,500 feet and 4,000 feet.

Claims: One hundred and sixty-four Crown-granted and 186 claims are held by record.

Access: By 28 miles of road from Stewart, through the State of Alaska to Tide Lake camp and thence by an 11.6-mile tunnel to the mine.

Owner: Granduc Mines, Limited.

Operator: GRANDUC OPERATING COMPANY, 520, 890 West Pender Street, Vancouver 1; N. Gritzuk, vice-president and general manager; mine address, P.O. Box 69, Stewart; K. C. Wilson, resident manager.

Metals: Copper, silver.

Work Done:

Mine

Following the tunnel breakthrough in December, 1968, all efforts were directed to equipping the 2600 level with the facilities that would permit the mine development work to proceed efficiently. This included laying track throughout the 2600 level, taking out the sliding floor used in tunnel driving, extending the electrical power-line to connect the surface and mine systems, and setting up compressors on a temporary basis.

The period January-February, coincided with the re-negotiation of a " Collective Bargaining Agreement " during which a work slow-down took place, and resulted in a lock-out that lasted approximately five months, before an agreement was signed.

Plate IIIA.—Granduc mine, general view of the portal area and new concentrator, Summit Lake and Salmon Glacier in the distance.

Plate IIIB.—Granduc mine, powerhouse and new concentrator; Berendon Glacier in the background.

Operations were resumed in August, and the mine-development programme was aimed at completing the excavations for the mine facilities, compressor room, crusher room, electrical sub-station, shops, main fans, establishing the gathering ore haulageways on the 2600 level, driving a ramp to the top of the first mining level, and completing the ramp inter-connecting the 2600 and 3100 levels.

The footage completed at year end was: Advance, 8,357 feet and excavation, 164,234 cubic feet.

On surface 2,000 feet of diamond-core drilling was completed for ore definition and overburden testing, and 11,895 feet of underground diamond drilling was done.

Surface—Building and Machinery Installed

Three more producing water wells were commissioned, bringing the total number of water wells in operation to five. Fire pumps were installed. The crushing-plant area of the concentrator was almost completed. The pebble, ball, and rod mills were installed in the grinding area, along with the regrind ball-mill.

A new plant telephone system was set up and put into operation. Concentrate storage and loading facilities together with two oil tanks and lime tanks were constructed at Stewart. During the year the following crews were employed: Staff, 66; hourly, 197; contractor, 66.

Transportation

The plant facilities and operations at Tide Lake camp are serviced by truck from Stewart. During the period August to December a road tunnel (17 feet by 17 feet) was driven through the " Trojan Horse " a distance of 6,170 feet to by-pass a section of road subject to frequent small slides.

Electrical Installations

A 25-pair telephone cable, 55,000 feet long, was installed in the tunnel and put into service. The installation of the 25-kilovolt cable was completed and energized. All mine power is now distributed from the main electrical room on 2600 level. The available mine power is now 5,000 kva. A 300-horsepower ventilation fan has been installed and a new telephone exchange has been put into operation. Construction of the trolley catenary system was commenced but not completed.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 46–50.

STEWART

SILBAK PREMIER MINE (No. 141, Fig. 9)

By E. W. Grove

LOCATION: Lat. 56° 02′ Long. 130° 01′ (104B/1E)
On the west slope of Bear River Ridge, immediately north of the Alaska-British Columbia border.

CLAIMS: The present holdings cover an area of about 5 square miles.

ACCESS: By road about 14 miles north of Stewart.

OWNER: Silbak Premier Mines Limited.

OPERATOR: GRANDUC MINES, LIMITED (under agreement with Silbak Premier Mines Limited), 2009, 1177 West Hastings Street, Vancouver 1.

METALS: Gold, silver, copper, lead, zinc.

WORK DONE: A geological crew supervised by E. A. Ostensoe conducted a detailed soil-sampling programme, magnetometer survey, and several old showings on the Northern Light claims were opened.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1964, pp. 21, 22.

Description: The Silbak Premier mine has been inactive since 1968. At the termination of the agreement with Granduc Mines, Limited a new option was entered into with The Granby Mining Company Limited in December, 1969.

BIG MISSOURI (No. 148, Fig. 9)

Location: Lat. 56° 06′ Long. 130° 01′ (104B/1E)
Situated along Big Missouri Ridge, 5 miles north of Premier and about 22 miles by road north of Stewart.

Claims: Stewart-Wikstrom group consists of M-51, M-52, and M-118 mineral leases and 10 Crown-granted claims including the key LAURA, BUENA VISTA, and TERMINUS.

Access: By new road from Hyder-Stewart to Premier, then by the old Big Missouri wagon road to Hog Lake.

Owners: Carl C. and Jean E. Wikstrom.

Operator: TWAYCO EXPLORATIONS, Hyder, Alaska.

Metals: Lead, zinc, silver, copper.

Work Done: Sampling and trenching limited to three scattered areas along the ridge on M-51, M-52, and M-118 mineral leases.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 40.

Description: Mineralization currently under development consists of exposed irregular quartz sulphide masses localized within altered medium-grained green volcanic epiclastics along sets of axial plane fractures.

SILVER CROWN (No. 140, Fig. 9)

By E. W. Grove

Location: Lat. 56° 08′ Long. 129° 59′ (104A/4W)
On the upper west slope of Bear River Ridge between elevations 4,500 and 5,500 feet and northeast of Long Lake.

Claims: SILVER CROWN 13 to 19.

Access: By helicopter from Stewart.

Owner: D. COLLISON, Alice Arm.

Metals: Silver, lead, zinc.

Work Done: Trenching and sampling.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 50.

Description: A number of sulphide-bearing quartz breccia veins up to 7 feet wide found along a 1,500-foot zone trend northerly to northwesterly and fill extensive fractures in Middle Jurassic siltstones and greywackes. The fractures and veins are concentrated along the axial plane of a northwesterly plunging anticlinal fold. The sediments overlie Lower Jurassic volcanic epiclastics, which locally form the crest of Bear River Ridge. The country rocks and veins have been intruded by northwesterly trending lamprophyre dykes.

LITTLE JOE, GYPSY (No. 142, Fig. 9)

Location: Lat. 55° 59′ Long. 129° 55′ (103P/13W)
South side of Glacier Creek at elevation 2,400 feet about 2 miles east of the Bear River road.

Claims: Total of 16 claims including the key GYPSY, LITTLE JOE, and LUCKY SEVEN.

Access: From Stewart by helicopter or 4 miles north by road and trail.

Owner: Starbird Mines Ltd.

Operator: Under option to A. C. A. HOWE INTERNATIONAL LIMITED, 543 Granville Street, Vancouver 2.

Metals: Gold, silver.

Work Done: Geological map of the LITTLE JOE, GYPSY, and LUCKY SEVEN claims, 1 inch equals 100 feet.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 53, 54.

Description: Sulphide-bearing quartz breccia veins localized in fractured Bowser siltstones.

SWAN (No. 143, Fig. 9)

Location: Lat. 55° 58′ Long. 129° 57′ (103P/13W)
The claims are located on the east side of the Bear River opposite Granite Creek and north of Barneys Gulch.

Claims: SWAN 1 to 4.

Access: Two miles by road north of Stewart.

Owner: H. Swan.

Operator: GRANDUC MINES, LIMITED, 2009, 1177 West Hastings Street, Vancouver 1.

Metal: Zinc.

Work Done: One hundred feet of trenching through overburden.

Description: Skarn mineralization localized in Hazelton metasediments near the contact with Hyder biotite quartz monzonite. Skarn minerals include garnet, epidote, diopside with sphalerite and pyrrhotite. The area was once included in the Ajax group of claims, but the early work on this showing has never been recorded.

SILVERADO, PROSPERITY, PORTER IDAHO (No. 144, Fig. 9)

By E. W. Grove

Location: Lat. 55° 54.5′ Long. 129° 56′ (103P/13W)
On Mount Rainey immediately southeast of Stewart, on the east side of the Portland Canal.

Claims: Ninety-nine Crown-granted claims which include the three inoperative mines.

Access: From Stewart by helicopter, to the Prosperity-Porter Idaho camp and upper Silverado workings.

Owner: CASSIAR CONSOLIDATED MINES LTD., 610 Jervis Street, Vancouver 5; W. R. Wheeler, president; Bacon and Crowhurst Ltd., consultants.

Metals: Silver, lead, zinc.

Work Done: The Flat Vein tunnel located on the SILVER BOW claim at elevation 4,230 feet was mapped and sampled, and portions of the Porter Idaho D and I levels were examined and sampled by the consultant. Two company men prospected, trenched, and sampled showings on the west slope of Mount Rainey.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 35.

Description: Sulphide-bearing quartz vein mineralization currently being explored on the west slope of Mount Rainey consists of nearly flat-lying lenses which pinch and swell along their length. These veins appear to conform to the local bedding in the volcanic epiclastics and in the instance of the Flat Vein tunnel have been traced 700 feet on surface. Silver-bearing tetrahedrite is the principal sulphide mineral recognized in the veins. Work on these showings began in 1920 when the initial discoveries were made.

MAPLE BAY

MAPLE BAY (No. 145, Fig. 9)

By E. W. Grove

LOCATION: Lat. 55° 27′ Long. 130° 00′ (103O/8E)
On the east side of Portland Canal between elevations of 1,000 and 3,000 feet about 38 miles south of Stewart.

CLAIMS: ANACONDA, COMSTOCK, PRINCESS ALEXANDRIA, and five other Crown-granted claims.

ACCESS: By boat or aircraft about 85 miles from Prince Rupert.

OWNER: Maple Bay Copper Mines Limited.

OPERATOR: GREAT SLAVE MINES LTD. (by agreement), 100, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Four hundred and twenty-nine feet of adit driven below the Princess vein. A. G. Pentland, consultant; Oscar Nukka, project manager. The adit was collared at about elevation 2,260 feet on the north side of Bluebell Creek canyon.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1957, p. 7.

DESCRIPTION: The Princess vein is one of five quartz veins exposed on the claim group, all trending northeasterly with steep dips. The veins have been traced on surface and three have been diamond drilled. They are pinching, swelling, irregular bodies up to 20 feet wide composed almost entirely of vuggy white quartz with erratic pods and lenses of coarse-grained pyrite, pyrrhotite, and chalcopyrite. Major exploration of the veins was in the early 1920's by Granby Consolidated Mining, Smelting and Power Co. Ltd. More recently one of the main veins were diamond drilled by Keltic Mining Corporation Ltd. for the owner in 1967.

OBSERVATORY INLET

ANYOX

CD, CU (No. 146, Fig. 9)

By E. W. Grove

LOCATION: Lat. 55° 25′ Long. 129° 51′ (103P/5W)
Eighty miles north-northeast of Prince Rupert at Anyox, between Carney Lake and Bonanza Creek.

CLAIMS: One hundred and twenty-two claims including the CD, CU, and SUNSHINE groups of located claims and Mineral Leases 115, 129, 192, and 196.

ACCESS: By boat and float plane from Prince Rupert.

OWNER: ARCADIA EXPLORATIONS LTD., 1119, 409 Granville Street, Vancouver 1.

METALS: Copper, iron.

WORK DONE: Helicopter-borne electromagnetic and magnetometer survey conducted by Seigel and Associates over an area of about 30 square miles at one-eighth-mile line interval. Follow-up ground magnetometer and Crone electromagnetic surveys on eight claims supervised by P. Nielson. Seven EX size core holes totalling 488 feet were drilled on the Hillside showing and 227 rock samples taken for trace-element analysis. Other work included ground geophysical traversing, trenching, blasting of showings, sampling, camp construction, line-cutting, and trail-cutting.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1968, p. 55; 1965, pp. 57–61; Assessment Report No. 2284.

ALICE ARM

DOLLY VARDEN, NORTH STAR, TORIC, WOLF (No. 168, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 42′ Long. 129° 31′ (103P/12E)

Along the Kitsault River, between 17 and 21 miles north of Alice Arm.

CLAIMS: The DOLLY VARDEN holdings in the upper Kitsault valley comprise 79 claims arranged in several groups These include 25 Crown-granted claims, seven mineral leases, and 41 recorded claims.

ACCESS: By road from Alice Arm.

OWNER: Dolly Varden Mines Ltd.

OPERATOR: As above for the period January to September, BRALORNE CAN-FER RESOURCES LIMITED, 320, 355 Burrard Street, Vancouver 1, for remainder of year.

METALS: Silver, lead, zinc.

WORK DONE: Early in 1969 the owners carried out underground development at the Wolf mine consisting of 700 feet of drifting and 125 feet of raising. Twelve thousand feet of percussion drilling was done from underground workings for sampling purposes. A topographic map of the roads and plant-site was prepared and geological mapping of the Wolf underground workings was carried out. Bralorne Can-Fer Resources Limited, by the end of the year, had completed 5,320 feet of surface and 2,170 feet of underground drilling at the Wolf property.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1964, pp. 41–43; 1966, p. 42; 1967, p 41; 1968, p. 59.

DESCRIPTION: Underground work by the owners consisted of extending the 1300 and 1500 levels along the No. 2 vein and raising and driving a sub-level 125 feet above the 1450 level on the No. 1 vein (*see Minister of Mines, B.C.*, Ann. Rept., 1964, p. 42).

TIGER (No. 170, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 42′ Long. 129° 30′ (103P/11W, 12E)

On the east side of the Kitsault River, 18 miles north of Alice Arm, between 1,100 feet and 2,500 feet elevation.

CLAIMS: Two Crown-granted claims (Lots 3613 and 3614) and one fraction (Lot 3615).

ACCESS: By road and trail from Alice Arm.

OWNER: The Anaconda Company (Canada) Ltd.

OPERATOR: SILVER BUTTE MINES LTD., 705, 850 West Hastings Street, Vancouver 1.

METAL: Silver.

WORK DONE: A camp was constructed near the lower workings and a horizontal AX-size hole 393 feet long was drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1918, pp. K59, K60; 1928, pp. C87, C88; 1951, pp. 101, 102; 1968, p. 59.

DESCRIPTION:

The Tiger claims were located in 1916 following the discovery of a silver-bearing quartz vein at 2,000 feet elevation immediately north of the Toric claims in the

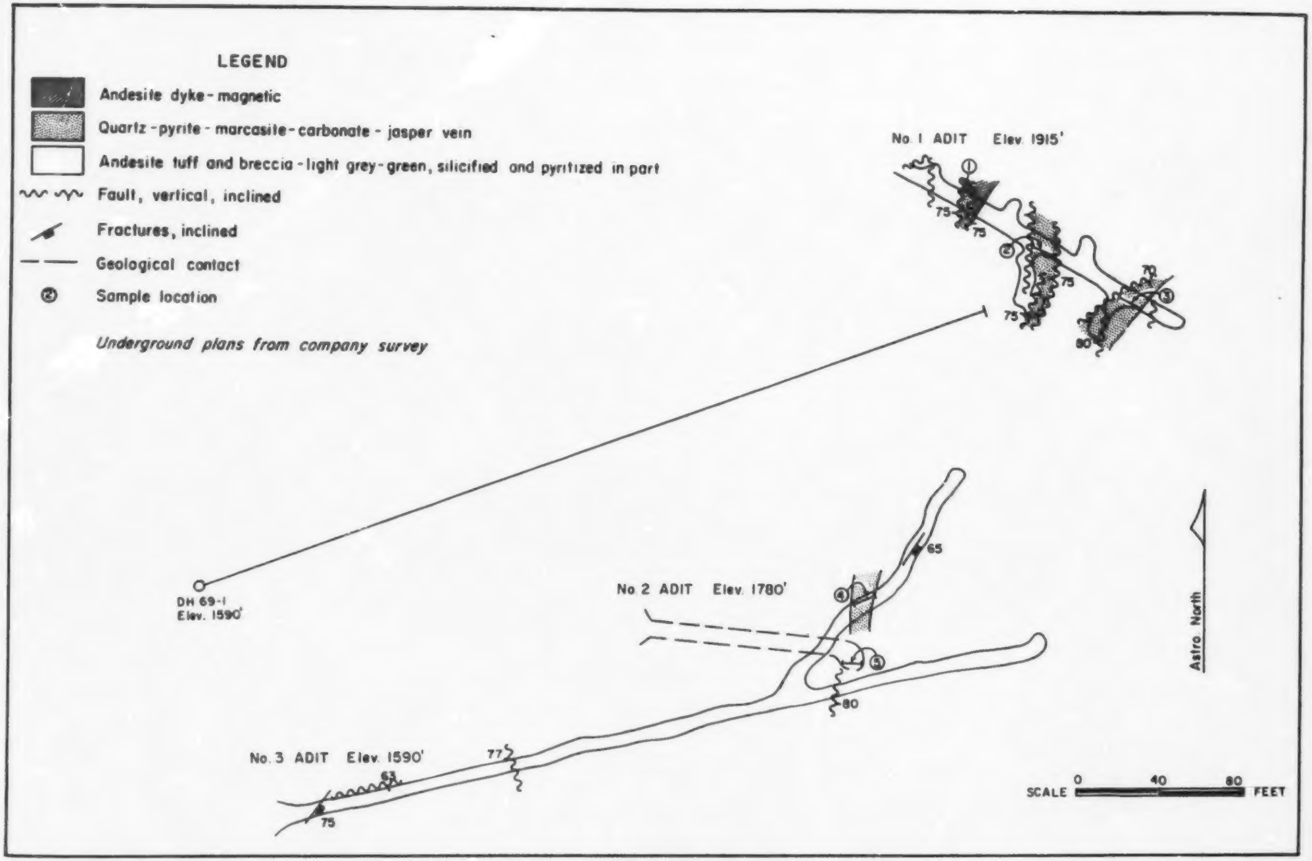

LEGEND
Andesite dyke - magnetic
Quartz - pyrite - marcasite - carbonate - jasper vein
Andesite tuff and breccia - light grey-green, silicified and pyritized in part
Fault, vertical, inclined
Fractures, inclined
Geological contact
Sample location
Underground plans from company survey
No. 1 ADIT Elev. 1915'
No. 2 ADIT Elev. 1780'
No. 3 ADIT Elev. 1590'
DH 69-1
Elev. 1590'
Astro North
SCALE
0
40
80
FEET
75
75
75
75
70
80
65
80
77
63
75
①
②
③
④
⑤

Figure 10. Tiger group, plan of No. 1 and No. 3 adits.

upper Kitsault valley. Early work included open cuts and a crosscut adit below the original showing. In 1928, Utility Mines (Number One) Ltd. was incorporated to continue exploration work, which consisted of two adits below the original workings. Work was suspended in 1930 and the property remained dormant until optioned by the present operators in 1968.

The claims are underlain by massive, fragmental volcanic rocks of variable composition. From the Kitsault River to a point just below the lowermost workings, brick red tuffs and breccias are the dominant rock types and are massive to schistose. In the vicinity of the underground workings the rocks are of two varieties, including light grey-green crystal lithic tuff and hornblende crystal tuff, in which 1-millimetre hornblende crystals are set in a very fine-grained light-grey matrix. Both rock types display varying degrees of carbonate alteration, and widespread silicification near mineralized structures has nearly obliterated the original textures. Local jasper alteration has rendered the rocks a reddish coloration in the underground workings.

Narrow basic dykes, northeast striking and steeply dipping and generally less than a few feet wide, were noted in the upper adit and in the drill core. These are of two types, including fine- to medium-grained lamprophyre dykes and fine-grained dark-grey andesite and basalt dykes which contain 1-millimetre feldspar phenocrysts or carbonate amygdules. Both varieties are magnetic.

The volcanic rocks in the vicinity of the workings are transected by closely spaced fractures and shear planes which strike northeast and dip steeply east or west.

Silver values are associated with a northerly trending, steeply dipping quartz vein which varies in width from a few feet to more than 15 feet. The northern half of the vein structure, as exposed in the surface cuts and upper or No. 1 adit, has been segmented into three or more blocks by faulting (*see* Fig. 10). The southern half of the vein structure, as intersected in the horizontal drill hole and in the lower adits, is apparently undisturbed by cross-faults. The vein contains pyrite, marcasite, ruby silver, and some galena, and gangue minerals, in addition to quartz, include varying amounts of barite, carbonate, and jasper. Contacts between the vein and volcanic rocks are sharp (in some instances shears) to gradational where pyrite and marcasite occur as blebs in silicified volcanic rocks adjacent to the veins.

A number of samples were taken across the vein as exposed in the underground workings. The locations of these samples are shown on Figure 10 and assay results are tabulated below.

Sample Number	Location	Width	Au (Oz./Ton)	Ag (Oz./Ton)
1	No. 1 adit	2.5 ft.	*Nil*	Trace
2	No. 1 adit	12.0 ft.	*Nil*	Trace
3	No. 1 adit	15.0 ft.	Trace	6.2
4	No. 2 adit	10.0 ft.	Trace	1.7
5	No. 3 adit	12.0 ft.	Trace	4.8

During the 1969 field season a horizontal drill-hole collared northwest of, and at the same elevation as No. 3 adit, was drilled in a northeast direction to test the possible northern extension of the vein exposed in the lower two adits. When examined by the writer in early September, the hole was in progress at 208 feet. The final length of the hole was 393 feet and, according to a company statement, an 18-foot intersection of vein material, between 294 feet and 313 feet, assayed 6.2 ounces of silver per ton.

LA ROSE, SPECULATOR No. 2, BUNKER HILL (No. 171, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 33′ Long. 129° 32′ (103P/12E)
East slope of Tsimstol (Haystack) Mountain, at an elevation of 2,000 feet, 6 miles northeast of Alice Arm.

CLAIMS: Contiguous claim groups, including from north to south, LA ROSE group—Mineral Lease M-92 consisting of four Crown-granted claims (Lots 4245 to 4247 and 4249); SPECULATOR No. 2 Crown-granted claim (Lot 886) and three recorded claims; BUNKER HILL group—seven Crown-granted claims (Lots 927 to 929 and 5806 to 5809).

ACCESS: By logging-road and trail, or by helicopter from Alice Arm.

OWNERS: LA ROSE group (Mineral Lease M-92), Mrs. Barbara Crossley; SPECULATOR No. 2 and BUNKER HILL Crown-granted claims, E. A. Tretheway.

OPERATOR: PRIMER GROUP MINERALS LTD., 1836 West 15th Avenue, Vancouver 9.

METALS: Silver, lead, zinc (recorded production between 1918 and 1927—ore shipped, 74 tons; gold, 15 ounces; silver, 15,993 ounces; lead, 4,383 pounds; zinc, 3,576 pounds).

WORK DONE: Lines were blazed and an electromagnetic survey was carried out over the LA ROSE and SPECULATOR claims. A number of short pack-sack drill holes were completed. Some prospecting was done on the BUNKER HILL claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 60, 61; Assessment Report No. 2202.

DESCRIPTION:

Short drill holes were attempted south of the La Rose shaft and in an area west of the Speculator shaft. Considerable difficulty with overburden was encountered owing to the small size of the drill.

The Bunker Hill showings are situated some 4,000 feet southwest of the La Rose workings in a prominent creek canyon on the south slope of Tsimstol (Haystack) Mountain. The creek follows a major northwest-striking, steeply east-dipping fault zone which has developed along closely spaced bedding-plane shears in iron-stained black siltstones. Some interbedded greywacke with lenses of poorly sorted pebble conglomerate exhibiting a cataclastic texture was also noted. At an elevation of 2,000 feet, 30 feet above the creek, a 12- to 15-inch wide quartz breccia vein, following a northwest-striking, east-dipping fault, contains lenses of near massive sulphides including medium-grained pyrite, galena, sphalerite, and chalcopyrite. Banding parallel to the vein walls is well developed in the more massive sections. The vein is developed at this point by a short tunnel, open at both ends, along the east bank of the creek. Below the tunnel, at creek level, a crosscut adit apparently collared to intersect the vein was driven only 5 feet. Here, a 3-foot wide, northeast-striking lamprophyre dyke is offset several feet by northwest faults three times over a strike length of 15 feet.

The quartz-breccia-sulphide vein, varying in width from 4 to 10 inches, was followed northwest from the tunnel along the east side of the creek for a distance of nearly 200 feet. Several northeast-striking basic dykes, ranging in width from 3 to 30 feet, exhibit left-hand displacement of several feet on either side of the fault followed by the vein.

Assay results of four chip samples, taken at intervals across the vein, are tabulated below.

Sample No.	Location	Width	Gold	Silver	Copper	Lead	Zinc
		Inches	Oz. per Ton	Oz. per Ton	Per Cent	Per Cent	Per Cent
1624A	Tunnel	14	0.08	7.1	0.08	5.30	2.40
1625A	40 feet north of tunnel	10	0.10	9.6	0.21	4.30	12.29
1626A	60 feet north of tunnel	7	0.56	17.0	0.13	10.47	5.00
1627A	160 feet north of tunnel	6	0.07	4.0	0.21	0.44	2.35

ESPERANZA, ALICE (No. 172, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 29′ Long. 129° 29′ (103P/6W) Between one-half and 1 mile north of Alice Arm on the west side of the Kitsault River; elevations range from 200 to 1,500 feet.

CLAIMS: Mineral Lease M-71, including the BLACK BEAR (Lot 1071), ALDEBARAN (Lot 1072), and I'LL CHANCE IT (Lot 1073) claims, plus 14 recorded LORI claims.

ACCESS: By road and trail from Alice Arm.

OWNER: LORI EXPLORATIONS LTD., 901, 900 West Hastings Street, Vancouver 1.

METALS: Silver, gold. Recorded production, 1911 to 1948, 4,987 tons; gold, 257 ounces; silver, 143,115 ounces; copper, 2,623 pounds; lead, 13,303 pounds.

WORK DONE: The old road to the Esperanza adits was rehabilitated and 1,500 feet of new road was constructed. The underground workings were surveyed and geological mapping was carried out. Soil samples, later analysed for silver content, were collected from a grid established near the Alice adits. Six drill-holes, totalling 1,800 feet, were put down to test the Esperanza vein. A crew of six men was employed for four months.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1947, pp. 92–94; 1965, p. 63; 1968, p. 59; *Geol. Surv., Canada,* Mem. 175, pp. 62–65.

DESCRIPTION:

The Esperanza silver vein was discovered in 1908 and intermittent work was carried out in subsequent years by individuals who owned the property. In 1927 a company was incorporated, a mill was built, and underground development and ore shipments continued until 1934. Exploratory work on the Alice claims, nearly a mile to the northwest, was carried out more or less concurrently with work at the Esperanza property. Both properties remained dormant until 1947, when a jeep-road was built and some underground work was done at both properties. Some ore was shipped in 1947 and 1948. Sileurian Chieftain Mining Company Limited held an option on the Esperanza claims in 1964 and 1965 and five short drill-holes were put down near the old workings. The present company acquired a mineral lease on the claims in 1968.

The main Esperanza vein has been developed by several adits driven into the steep hillside between elevations of 400 and 600 feet (*see* Fig. 11). Three short adits are situated just north of the area shown on the accompanying plan. Much of the vein above and below No. 3 adit has been mined out and the end of No. 4 adit is accessible only by a downward stope from No. 3 adit. Adits Nos. 6, 7, and 8, to the south of the main workings, were driven on different vein structures.

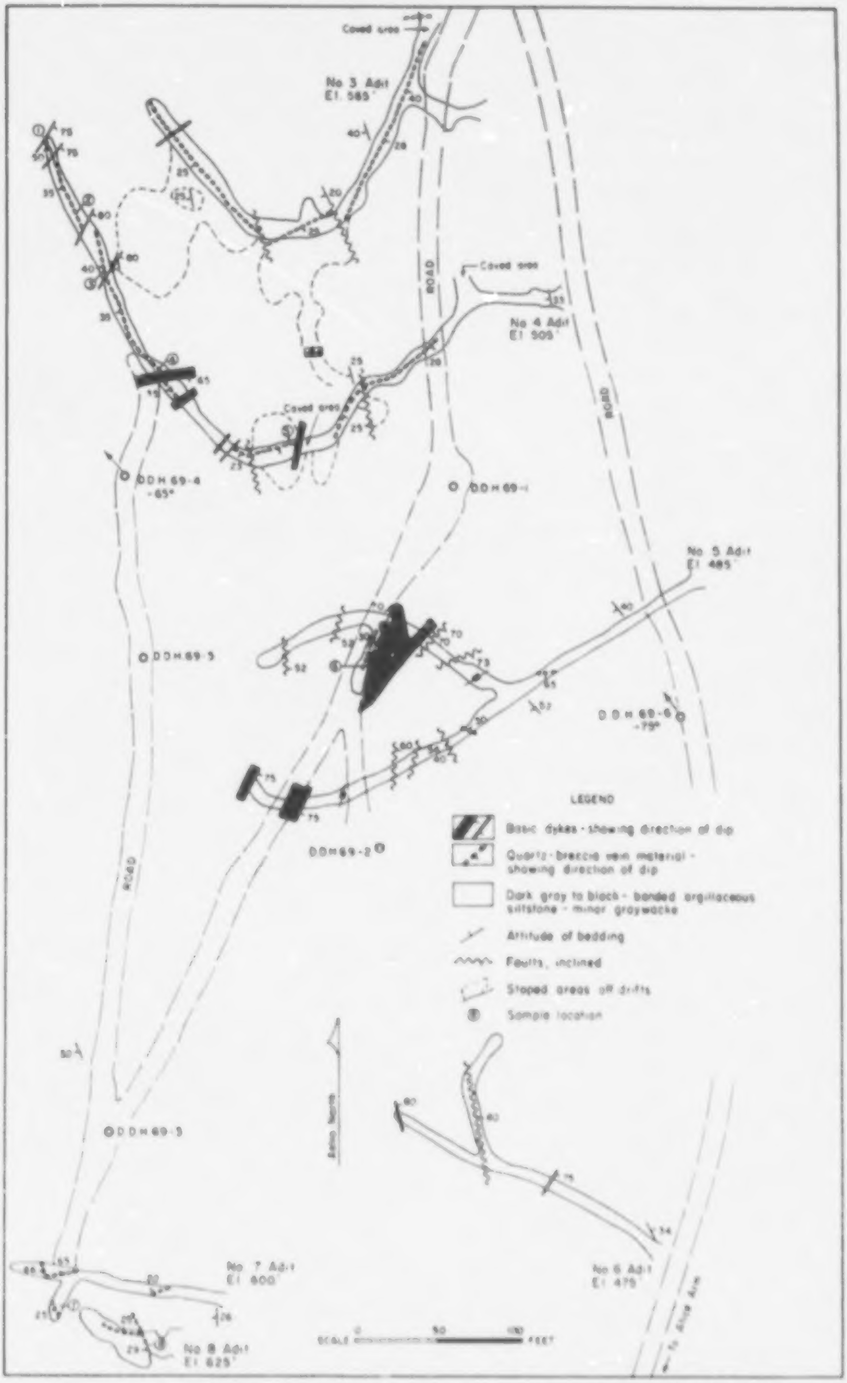

Caved area
No 3 Adit
El 585'
ROAD
Caved area
No 4 Adit
El 505'
ROAD
Caved area
DDH 69-4
-65°
DDH 69-1
No 5 Adit
El 485'
DDH 69-5
DDH 69-6
-75°
DDH 69-2
LEGEND
Basic dykes - showing direction of dip
Quartz-breccia vein material - showing direction of dip
Dark grey to black - banded argillaceous siltstone - minor greywacke
Attitude of bedding
Faults, inclined
Stoped areas off drifts
Sample location
ROAD
DDH 69-3
No 6 Adit
El 475'
No 7 Adit
El 600'
No 8 Adit
El 625'
SCALE
0
50
100
FEET
to Alice Arm

Figure 11. Lori Explorations Ltd., plan of underground workings on the Esperanza (based in part on company plans).

The quartz-breccia-sulphide vein cuts a sequence of thinly bedded dark-grey-banded argillaceous siltstones, which strike northwest and dip moderately west. The vein contains small angular rock fragments and thin rock selvages parallel to the walls, giving it a banded appearance. The vein is arcuate in plan, and occupies a shear zone which strikes from northeast to east to northwest and dips gently southward. Maximum widths are attained where the structure crosscuts the trend of the sedimentary rocks. Where it parallels the stratification, the vein narrows to a few inches or is split into two narrow veins separated by 3 feet of wallrock, as seen near the end of No. 4 adit. Metallic minerals in the vein include pyrite, galena, sphalerite, and ruby silver, and possibly some tetrahedrite. Quartz and carbonate are the main gangue minerals. Scheelite is present in minor amounts near the end of No. 4 adit, although only a trace was detected in samples taken from the south side of the drift.

Basic dykes ranging in width from several inches to several feet crosscut the vein. The central parts of wider dykes are microdiorites which have a chilled border that is very fine grained and buff in colour. A few narrow sills were noted paralleling the vein. The dykes strike northeast and dip steeply, and offsetting of the veins on opposite sides of the dykes is a common feature. Grade of mineralization is slightly higher adjacent to the dykes.

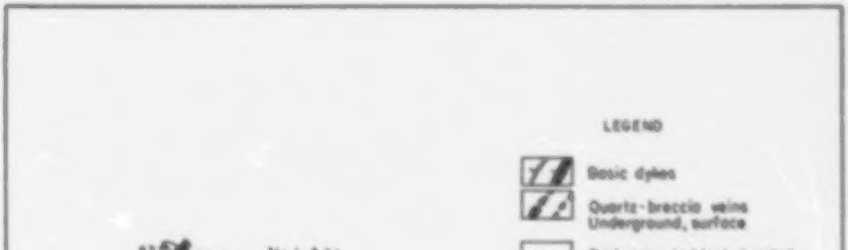

LEGEND
Basic dykes
Quartz-breccia veins
Underground, surface
Dark gray to black banded argillaceous siltstone
Open cuts
Sample location
No. 1 Adit
El. 1470'
No. 2 Adit
El. 1480'
Astro North
SCALE 0 50 100 FEET
65
80
60
75
80
53
65
60
47
80
60

Figure 12. Lori Explorations Ltd., plan of underground workings on the Alice (based in part on company plans).

A down-dip projection of the main Esperanza vein, as exposed in adits Nos. 3 and 4, indicates that it would pass below the level of No. 5 adit, although a narrow vein of similar trend was intersected in a small drift off the north crosscut of this adit. Vein material, similar to the main vein, was intersected in 1969 drill-holes Nos. 1 and 4.

Nos. 7 and 8 adits, at an elevation of about 650 feet, are situated south of, and higher than the main workings (*see* Fig. 11). These were driven to explore irregular veins of similar structure and mineralogy.

A number of samples were taken across the veins exposed in the underground workings, the locations of which are indicated on Figure 11. Assay results are tabulated below:—

Sample No.	Location	Width	Gold	Silver	Copper	Lead	Zinc
		Inches	Oz. per Ton	Oz. per Ton	Per Cent	Per Cent	Per Cent
1	No. 4 adit	6	(1)	2.4	0.01	0.01	.....
2	No. 4 adit	10	0.08	9.1	0.01	0.07	0.07
3	No. 4 adit	6	0.14	35.3	0.02	0.24	0.06
4	No. 4 adit	20	0.30	38.9	0.03	0.28	0.40
5	No. 4 adit	24	0.03	39.2	0.11	0.33	1.16
6	No. 5 adit	2	0.09	67.2	0.01	0.30	0.45
7	No. 7 adit	48	0.03	2.0	0.01	0.14	0.04
8	No. 8 adit	6	0.09	58.2	0.14	0.55	1.71

[1] Trace.

The Alice surface cuts and two adits are situated approximately 4,000 feet northwest of the Esperanza workings at an elevation of 1,500 feet (*see* Fig. 12). Here, a quartz-breccia-sulphide vein, similar to the Esperanza vein, strikes northwest and dips moderately west, following a bedding plane shear in dark argillaceous siltstones. The vein is cut by a northeast-striking basic dyke swarm in the lower adit. As exposed in two open cuts and two adits, the vein has a length of 250 feet. A small crosscut adit and a few open cuts were made on a similar structure 325 feet northwest of the portal of the upper adit.

The vein is erratic in form and sparsely mineralized in the upper or No. 1 adit. It attains its greatest exposed width in the north drift of No. 2 adit, where it is 6 feet wide and is bounded on both hangingwall and footwall by 1-foot-wide banded zones of near massive sulphides, including pyrite, galena, sphalerite, and ruby silver.

Locations of samples taken across the vein in the underground workings and surface cuts are shown on Figure 12 and the results are tabulated below:—

Sample No.	Location	Width	Gold	Silver	Copper	Lead	Zinc
		Ft.	Oz. per Ton	Oz. per Ton	Per Cent	Per Cent	Per Cent
1	No. 1 adit	2	0.06	6.1	0.02	0.08	0.01
2	No. 1 adit	4	0.04	1.7	(1)	0.06	0.04
3	Open cut	Dump sample	0.21	20.2	0.05	0.38	0.61
4	No. 2 adit	1	0.08	75.4	0.05	0.78	1.19
5	No. 2 adit	6	0.06	19.5	0.01	0.19	0.23

[1] Trace.

HAYWIRE (No. 174, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 26′ Long. 129° 41′ (103P/5E)

One and one-half miles northeast of Davies Point at the entrance to Alice Arm.

CLAIMS: HAYWIRE 1 to 4.

ACCESS: By boat or helicopter from Alice Arm.

OWNERS: D. COLLISON and A. D. YORK, Alice Arm.

METALS: Nickel, copper.

WORK DONE: Blasting and trenching in the vicinity of the principal showing.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1965, pp. 61, 62.

DESCRIPTION:

The principal showing is exposed in an open cut a few hundred feet inland from the beach. The cut is an easterly extension of the original trench which exposed a 1-foot wide lens of massive pyrrhotite containing stringers and blebs of chalcopyrite. A sample across the west-striking, north-dipping lens assayed: Gold, trace; silver, 0.3 ounce per ton; platinum, trace; copper, 1.16 per cent; nickel, 1.11 per cent; and cobalt, 0.18 per cent (*see* Ann. Rept., 1965, pp. 61, 62).

The massive sulphide lens is associated with an olivine gabbro sill which contains disseminated pyrrhotite and chalcopyrite. The crumbly nature of the rock as exposed in the cut is due to weathering along numerous fractures and shears. Limonite with minor malachite staining is well developed and the zone is capped by a gossan several feet thick. A prominent northeast-striking shear zone at the east end of the 30-foot long cut attains a maximum width of 3 feet. A sample across the shear assayed: Gold, trace; silver, 0.2 ounce per ton; nickel, 0.29 per cent; copper, 0.42 per cent; cobalt, 0.04 per cent. A chip sample taken along the length of the cut assayed: Gold, trace; silver, 0.3 ounce per ton; nickel, 0.13 per cent; copper, 0.27 per cent; cobalt, 0.01 per cent.

On the beach, the sill is 15 feet wide and intrudes fine-grained quartz-biotite-sericite schist. The rock is of a more cohesive nature and no sulphide minerals were noted.

ROUNDY CREEK (No. 167, Fig. 9)

By N. C. Carter

LOCATION: Lat. 55° 25′ Long. 129° 30′ (103P/6W)
South of Alice Arm, on Roundy Creek, 1¼ miles from tidewater.

CLAIMS: Fifty claims, including the LEE group of 34 claims, eight CJ claims, five ROUNDY claims, and three DM claims.

ACCESS: By road from Kitsault, a distance of 2½ miles.

OWNER: SILEURIAN CHIEFTAIN MINING COMPANY LIMITED, 850 West Hastings Street, Vancouver 1.

METAL: Molybdenum.

WORK DONE: During the spring and summer, 32 holes were drilled totalling 5,000 feet. Late in the fall, 1 mile of road was constructed from Roundy Creek to an elevation of 1,020 feet on Sunshine Creek. By year-end, some 300 feet of drifting had been completed in the area in which high-grade molybdenite values had been obtained by drilling. Work was scheduled to continue throughout the winter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 61–63.

DESCRIPTION: Further drilling in an area southwest of the Sunshine Creek camp yielded disappointing results. Three vertical holes were drilled near the locations of drill holes S-30 and S-37A south of Sunshine Creek and there intersected molybdenite mineralization at depth. These results suggest that the mineralized zone here is tabular in form and dips moderately south (*see* Fig. 11, Ann. Rept., 1968, p. 62).

BRITISH COLUMBIA MOLYBDENUM MINE (No. 115, Fig. 9)

By H. Bapty

Location: Lat. 55° 25′ Long. 129° 25.5′ (103P/6W)
The property is on Patsy Creek, the east fork of Lime Creek, and is 5 miles southeast of the head of Alice Arm Inlet at elevation of 2,000 feet.

Claims: The property consists of 99 full and fractional claims of which the key mining claims are PATRICIA 1 to 5.

Access: From Prince Rupert by boat or pontoon-equipped aircraft. Local freight is handled by coastal shipping and off-loading to a company barge at Alice Arm. All other freight supplies and the shipping of concentrate are done by barge from Vancouver.

Owner: BRITISH COLUMBIA MOLYBDENUM LIMITED, 810, 402 West Pender Street, Vancouver 3; mine office, Kitsault; C. T. Penney, general manager; K. R. Hulley, general superintendent; T. Maestretti, mine superintendent; C. Smith, mill superintendent.

Metal: Molybdenum (*see* Table 12 for production).

Work Done: Ore shipped or treated, 2,356,514 tons; waste mined, 3,602,733 tons. A total of 10,992 feet of diamond drilling was completed in 11 holes. At the townsite 12 additional prefabricated homes were added for a total of 56. There are also some employee-owned mobile trailer homes. Construction was started on a recreation centre and on a four-room school.

References: *Minister of Mines, B.C.*, Ann. Repts., 1964, pp. 30–36; 1968, p. 63.

MOLY (No. 173, Fig. 9)

By N. C. Carter

Location: Lat. 55° 28′ Long. 129° 20′ (103P/6W)

Claims: Thirty-five MOLY claims.

Access: By helicopter from Alice Arm or by foot 2 miles from the British Columbia Molybdenum water intake at Clary Lake.

Owner: BELL MOLYBDENUM MINES LIMITED, 300, 999 West Pender Street, Vancouver 1.

Metal: Molybdenum.

Work Done: Two men spent two months prospecting and completing a geological map of the property.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, pp. 44–47.

NASS RIVER

KAY (No. 175, Fig. 9)

By N. C. Carter

Location: Lat. 55° 08′ Long. 129° 20′ (103P/3W)
South side of Nass River between Kwinyarh and Ansedagan Creeks. Elevations range from 70 to 700 feet.

Claims: KAY 1 to 35 claims held by owner; KAY 36 to 51 claims held by operator.

Access: Greenville logging-road from Aiyansh, a distance of 16 miles.

Owner: Peter Hughan, of Aiyansh.

Operator: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

Metal: Molybdenum.

WORK DONE: Four men spent six months on the property under the supervision of R. N. Singh, geologist. A geological map of the entire claim group was made and soil sampling and an induced polarization survey were carried out. Four trenches were blasted and 1,997 feet of diamond drilling was done.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, pp. 50–52; Assessment Report No. 1980.

DESCRIPTION:

An elliptical stock of quartz monzonite porphyry, elongate in a northeasterly direction and measuring 5,000 by 2,000 feet, intrudes Bowser Group siltstones and phyllites in the central part of the claim group. Several trenches near the central part of the stock expose molybdenite mineralization which occurs in quartz veinlets and as disseminated rosettes. Oxidation of pyrite has resulted; iron staining and some oxidation of molybdenite were also noted.

The major rock type is a leucocratic quartz feldspar porphyry with prominent 1- to 2-millimetre phenocrysts of microcline. Northwest-striking dykes of fine-grained hornblende diorite represent a later intrusive phase.

Nass River Mines Limited held an option on the property in 1967 and in 1968 Shawinigan Mining and Smelting Company Limited did some trenching. Drilling by Phelps Dodge Corporation of Canada, Limited in 1969 included three angle holes in the vicinity of the trenches near the central part of the stock and two holes drilled 2,000 feet to the southwest.

TERRACE

HOPE SILVER (No. 176, Fig. 9)

By N. C. Carter

LOCATION: Lat. 54° 58′ Long. 128° 53′ (103I/15W)
Southeast of Sand Lake, near Belway Creek, at an elevation of 1,100 feet.

CLAIMS: Twenty HOPE claims.

ACCESS: Thirty-five miles north of Terrace on the Nass River logging-road.

OWNER: KLEANZA MINES LTD., 210, 535 Howe Street, Vancouver 1.

METALS: Silver, copper, lead, zinc.

WORK DONE: Three men spent six months on the property. Geological mapping and geochemical and electromagnetic surveys were conducted over the HOPE 1 and 2 claims. Ten bulldozer trenches were completed and two short holes totalling 90 feet were drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 51; *Geol. Surv., Canada*, Mem. 205, pp. 11–13; Mem. 329, p. 73.

DESCRIPTION:

The mineral showings were originally staked in 1913 and the property has been subsequently known as the Iona, Silver Dollar, Silver Coin, Silver Plate, and Silver Cup groups. Early development work included several pits, a 50-foot adit, and a 20-foot shaft from which some high-grade ore was shipped in 1926. More recently, in 1966, 6 tons of ore was shipped, containing 242 ounces of silver, 333 pounds of copper, and 643 pounds of lead.

The showings and old workings are at an elevation of 1,100 feet. The surrounding area is mainly drift-covered and features very gentle topography. Rock exposures are limited to the old workings and to recent bulldozer trenches made at intervals over an area extending several hundred feet northwest and southeast of the principal showings.

The area is underlain by Bowser siltstones and greywackes which strike east-northeast and dip moderately to the northwest. A fossiliferous horizon was noted in a trench several hundred feet northwest of the old workings. A quartz-monzonite dyke was noted beside the road, 2,000 feet northwest of the mineralized area and a light-grey 10-foot-wide andesite dyke was observed in one of the trenches.

At the old shaft, a quartz-breccia-sulphide zone, 15 feet wide, occupies a shear zone striking southeast and dipping steeply south. Veining and sulphide mineralization is best developed over a width of 2½ feet adjacent to the footwall of the shear structure. The quartz-breccia zone occurs in dark-grey siltstones, and competent lithic greywacke makes up the sharply defined footwall. Ore minerals include pyrite, sphalerite, galena, chalcopyrite, and tetrahedrite, and a chip sample across the 15-foot width at the old shaft assayed: Gold, trace; silver, 12.6 ounces per ton; copper, 0.76 per cent; lead, 1.90 per cent; zinc, 6.7 per cent.

Shear zones of similar strike and dip, and with some narrow quartz-breccia vein development, were noted in trenches at intervals over several hundred feet southeast of the old workings.

LOU (No. 177, Fig. 9)

By N. C. Carter

LOCATION: Lat. 54° 57′ Long. 128° 52′ (103I/15W)
Cedar River valley at 500 feet elevation.

CLAIMS: LOU 1 to 27.

ACCESS: By logging-road and on foot from Terrace, 30 miles south.

OWNER: NEW GOLD STAR MINES LTD., 4644 Lazelle Avenue, Terrace.

METALS: Zinc, copper, lead.

WORK DONE: Three trenches were blasted and a geological map of the property was made. Three holes totalling 1,000 feet were drilled.

DESCRIPTION: Quartz-filled north to northeast-striking shear zones in Bowser Group sedimentary rocks contain pyrite, sphalerite, galena, and chalcopyrite.

MACEX (No. 178, Fig. 9)

By N. C. Carter

LOCATION: Lat. 54° 53′ Long. 128° 59′ (103I/15W)
South of Little Cedar River between elevations of 1,500 and 4,000 feet.

CLAIMS: MACEX group of 50 claims.

ACCESS: By helicopter from Terrace, 32 miles southeast.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Geological and geochemical surveys were carried out in addition to induced polarization and magnetic surveys. Eight men spent three months on the property under the supervision of D. McBride, geologist.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 69; Assessment Report No. 2029.

DESCRIPTION: Granodiorite intrudes Bowser Group sedimentary rocks. Pyrite, chalcopyrite, and molybdenite occur in quartz-filled fractures.

QUARTZ SILVER (No. 179, Fig. 9)

By N. C. Carter

LOCATION: Lat. 54° 43′ Long. 128° 54′ (103I/10W)
At 1,000 feet elevation south of Nelson River, 5 miles west of the south end of Kitsumkalum Lake.

CLAIMS: Forty-six including 6 QUARTZ SILVER claims and 40 QF claims.

ACCESS: By Nass River logging-road, a distance of 20 miles from Terrace.

OWNER: ATLANTIS MINES LTD., 210, 535 Howe Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE: General prospecting and bulldozer trenching.

DESCRIPTION:

A trench, several hundred feet long along the old logging-road south of the Nelson River, exposes a feldspar porphyry intrusive of undetermined size and form. The porphyry, of dacite composition, is light grey-green in colour and contains finely disseminated pyrite. Nearly one-quarter of the rock consists of one-millimeter phenocrysts of feldspar, altered to a mixture of sericite and clay minerals, set in a fine-grained matrix of quartz, sericite, and carbonate. The rock is cut by numerous quartz-carbonate-filled fractures. An inclusion of greywacke, containing subangular grains of volcanic rock was noted in the trenched area.

Near the west end of the trench, the feldspar porphyry contains coarse blebs of pyrite, sphalerite, galena, and chalcopyrite. A character sample from this zone assayed: Gold, trace; silver, 0.2 ounce per ton; copper, 0.08 per cent; lead, 0.12 per cent; zinc, 0.25 per cent. The intrusive is transected by a number of narrow northwest-striking, steeply dipping quartz-filled shear zones. A chip sample from a 3-foot wide quartz breccia zone of similar trend and containing galena, sphalerite, and chalcopyrite assayed: Gold, 0.01 ounce per ton; silver, 1.0 ounce per ton; copper, 0.21 per cent; lead, 4.10 per cent; zinc, 3.07 per cent.

KITIMAT

BOWBYES (No. 169, Fig. 9)

LOCATION: Lat. 54° 05.3′ Long. 128° 48.8′ (103I/2W)
At elevation 2,500 feet, 4 miles northwest of Kitimat.

CLAIMS: BOWBYES 1 to 6, JOAN 1 and 2.

ACCESS: Two miles by logging-road and 2 miles by trail from Kitimat.

OWNER: BOWBYES MINES LTD., 1767 Ingledew Street, Prince George.

METALS: Copper, iron.

WORK DONE: Some magnetometer observations were made and a few trenches and pits were excavated by bulldozer or by hand. About 600 square feet of bedrock was stripped.

QUEEN CHARLOTTE ISLANDS

GRAHAM ISLAND

MINO (No. 124, Fig. 9)

LOCATION: Lat. 53° 22.5′ Long. 132° 00.5′ (103F/8E)
Graham Island, on the Tlell River 3 miles west of Halibut Bight and 6 miles north of Skidegate Mission.

CLAIMS: MINO 1 to 76 claims grouped as the TANIA group.

OWNER: Efrem Specogna.

OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: About 3,500 soil samples and 1,000 silt samples were collected in the vicinity of Tlell River and north of lower Miller Creek for geochemical analysis. Twenty trenches, total length 500 feet, and 30 shallow pits were blasted.

References: *B.C. Dept. of Mines,* Bull. No. 54; Assessment Reports Nos. 2046A and 2046B.

Description: Chalcopyrite, sphalerite, molybdenite, and galena are associated with northerly and northwesterly faults in granodiorite, diorite, and Yakoun sediments and volcanics.

NRM (No. 119, Fig. 9)

Location: Lat. 53° 21′ Long. 132° 27′ (103F/8W)

On Graham Island on the north side of Shields Bay, Rennell Sound.

Claims: NRM 1 to 12.

Access: Sixteen miles by boat from Queen Charlotte City.

Owner: NIKAMOR BIDIUK, P.O. Box 84, Juskatla.

Metal: Copper.

Work Done: Magnetometer and electromagnetic surveys were made on the NRM No. 3 and No. 4 claims.

Reference: Assessment Report No. 2015.

Description: Bornite and chalcopyrite occur in a skarn zone extending south 70 degrees east from a quartz diorite contact near the shore.

MORESBY ISLAND

TASU MINE (No. 113, Fig. 9)

By H. Bapty

Location: Lat. 52° 45.5′ Long. 132° 03′ (103C/16E)

On the south side of Tasu Sound, Moresby Island, extending from sea level to 5,000 feet.

Claims: Twenty-one Crown-granted and 83 recorded claims.

Access: By aeroplane or power boat from Sandspit.

Owner: WESFROB MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1; F. A. Godfrey, mine manager; P. L. Munro, production superintendent; C. Stafford, mine superintendent; K. Blower, concentrator superintendent.

Metals: Iron, copper (*see* Table 12 for production).

Work Done: During the year 2,120,646 tons of iron ore was mined which produced 1,040,293 tons of iron ore concentrate and 40,122 tons of copper concentrate; 967,353 cubic yards of waste was also mined. Diamond drilling amounted to 17,179 feet. A new single men's residence to house 100 men was commenced. This will replace present temporary buildings. New equipment installed was as follows: A room ventilating fan driven by a one-half-horsepower motor in the primary crusher. In the secondary crusher a pump driven by a 7½-horsepower motor was installed to move the scrubber discharge to the concentrator. Two 10-kilowatt electric heaters were also installed. In the concentrator an iron filter was installed consisting of a vacuum pump driven by a 100-horsepower motor, a filter driven by a 5-horsepower motor, a filter agitator driven by a 7½-horsepower motor, a filterate pump driven by a 5-horsepower motor, and a ventilating fan driven by a 5-horsepower motor. In the assay grinding room a ventilating fan driven by a 3-horsepower motor was installed.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 70.

CHARLOTTE LAKE

MM (No. 507, Fig. 31)

LOCATION: Lat. 52° 23′ Long. 125° 28.5′ (93C/6W)
West end of Kappan Lake, at 3,500 feet elevation.

CLAIMS: MM, 41 in all.

ACCESS: Sixteen miles from Nimpo Lake via the Williams Lake–Bella Coola road.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METALS: Molybdenum, copper.

WORK DONE: The work included a geological survey of MM 95 to 98 and 100 claims, an induced polarization survey of MM 77 to 82 and 85 to 88 claims, and a geochemical survey of MM 95, 97, 98, and 100 claims. Three EX holes totalling 427 feet were diamond drilled. J. M. McAndrew, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 72; Assessment Report No. 1848.

TEL (No. 107, Fig. 31)

LOCATION: Lat. 52° 18′ Long. 125° 37′ (93C/5E)
Elevation 5,500 feet, near Baldy Lake about 18 miles southwest of Anahim Lake.

CLAIMS: TEL 1 to 77, 90 to 97.

ACCESS: By float plane from Nimpo Lake, 16 miles to the east.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Molybdenum.

WORK DONE: Bedrock geology was mapped, about 2,574 soil samples taken at 100-foot intervals along lines 800 feet apart were analysed for molybdenum, copper, lead, zinc, and silver; magnetometer, seismic, and induced polarization surveys of the claims were made. Some pits and open cuts were dug by hand. The work was supervised by Rod Macrae.

REFERENCES: Assessment Reports Nos. 1955 and 1958.

ADA (No. 108, Fig. 31)

LOCATION: Lat. 52° 09′ Long. 125° 35′ (93C/4E)
Six miles west of Charlotte Lake, at elevations between 6,500 and 7,000 feet, south of Atnarko River, straddling the boundary between the Skeena and Cariboo Mining Divisions.

CLAIMS: ADA 1 to 44.

ACCESS: By helicopter from Nimpo Lake, 20 miles to the east.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: The claims were mapped geologically and 25 stream silt samples were taken for geochemical analysis.

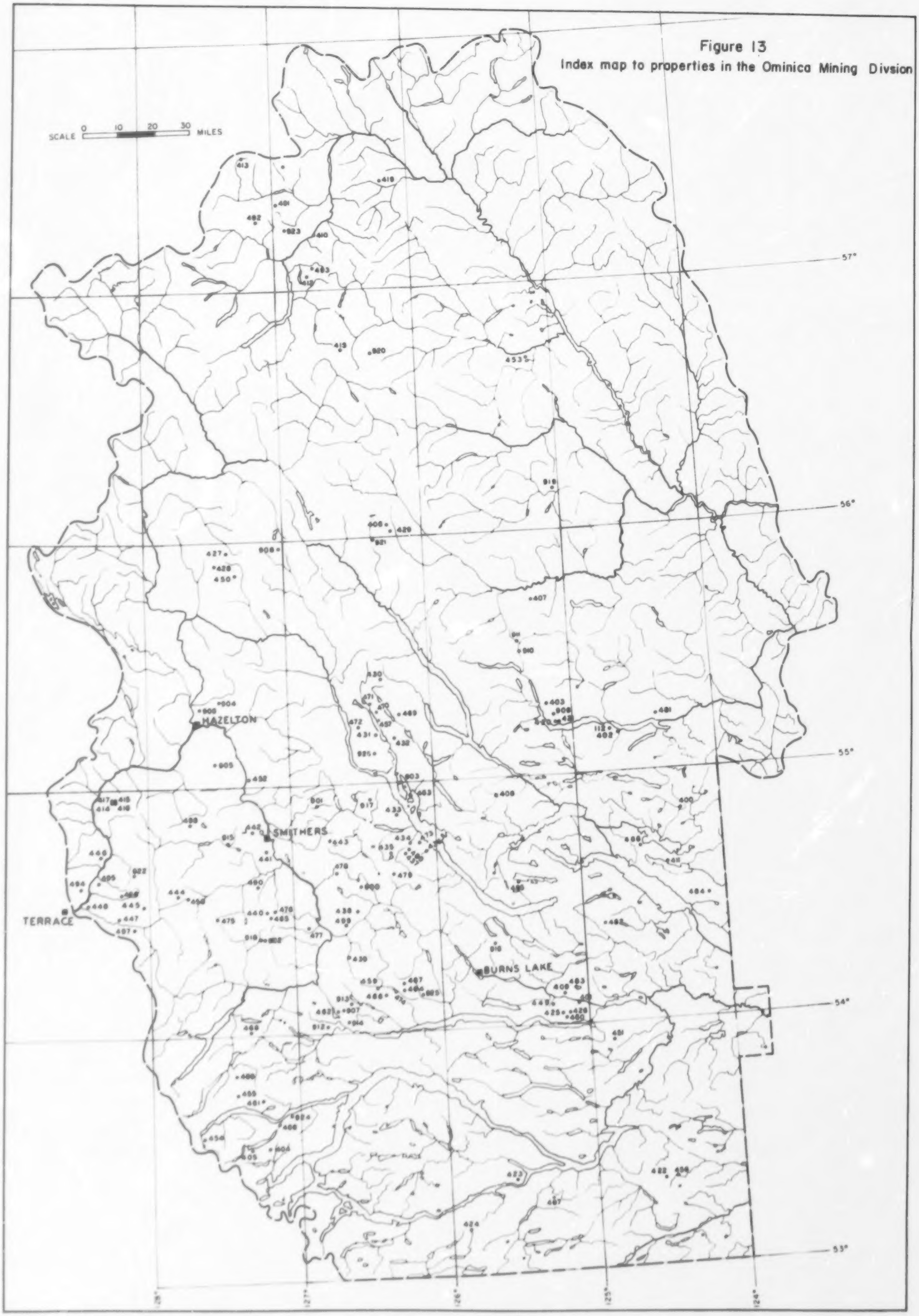

SCALE 0 10 20 30 MILES
57°
56°
55°
54°
53°
128°
127°
126°
125°
124°
HAZELTON
SMITHERS
TERRACE
BURNS LAKE
413
401
482
923
410
419
483
412
415
920
453
919
906
429
921
427
428
450
908
407
911
910
403
481
112
402
930
471
470
469
472
457
431
432
904
900
905
432
925
903
463
408
400
917
433
901
917
416
414
418
462
915
443
434
635
441
470
476
900
488
446
922
494
495
444
440
476
460
475
465
447
497
436
499
477
430
459
407
404
466
913
907
462
914
912
910
483
409
648
429
425
460
484
481
499
465
461
924
406
454
405
904
423
422
496
487
424

Figure 13
Index map to properties in the Ominica Mining Divsion

KEY TO PROPERTIES ON INDEX MAP, FIGURE 13

112 FAR, page 107.
400 HAT, page 155.
401 BONUS, page 152.
402 TAN, page 107.
403 HEATH, page 106.
404 FAB, page 98.
405 OVP, MK, page 98.
406 FRED, BOBO, MARG (NORTHSTAR), page 102.
407 GAV, SLOPE, page 106.
408 DIANE, page 109.
409 CHESS, page 152.
410 PINE, page 103.
411 PINCHI LAKE MINE, page 156.
CIN, page 156.
412 KEMESS, page 104.
413 HARMON, page 102.
414 MAG, page 83.
415 REGA, page 83.
416 JACKAL, page 84.
417 NIILO, page 84.
418 MARMOT, THORNE, page 104.
419 PINE, page 109.
420 HI, page 107.
421 BAL, page 107.
422 CHU, page 155.
423 TET, page 154.
424 NAT, page 154.
425 NU, ELK, page 153.
426 CO, page 153.
427 COB, ICE, JAN, MAD, page 101.
428 FOG, page 100.
429 JESS, HOLLY, page 108.
430 CAVZ, page 110.
431 WOLF, page 113.
432 KOFIT, page 113.
433 BADGE, page 115.
434 TACHI, page 115.
435 BAB, page 118.
436 RED, page 119.
437 FG, page 118.
438 LV, page 121.
439 DOT, ROD, TON, LUKY, page 122.
440 HB, AJ (HUNTER), page 86.
441 MIDNIGHT, CANADIAN CITIZEN, AMERICAN CITIZEN, page 85.
442 GLACIER GULCH, page 85.
443 ASCOT, page 100.
444 ALLIE, page 79.
445 GRIZZLEY, GLEN, SNOWSHOE, SNO, page 79.
446 JOE, MO, HJ, page 77.
447 DARDANELLE, page 78.
448 CROESUS, page 77.
449 SAM, page 152.
450 ICE, page 101.
451 OWL, NIT, page 154.
452 TETRA (MORICETOWN SILVER), page 99.
453 FERGUSON, page 109.
454 GG, page 76.
455 GLORY, page 93.
456 C, 2, page 155.
457 SPARK, JOY, page 112.
458 ZAP, page 80.
459 RAY, page 148.
460 ENDAKO MINE, page 153.
461 EMERALD GLACIER MINE, page 92.
462 SILVER QUEEN (NADINA), page 126.
463 GRANISLE MINE, page 114.
464 SAM, page 150.
465 DOM, page 87.
466 KG, page 149, 150.
467 SG (SAM GOOSLY), page 142.
468 KING, QUEEN, JACK, page 151.
469 DA, page 112.
470 ALPHA, page 112.
471 BETH, page 112.
472 BABE, page 113.
473 TOPLEY, BABINE, TOTEM, page 117.
474 NWB, page 150.
475 SR, PG, SC, page 91.
476 LAVA, page 86.
477 BARR, LYBDENUM, page 122.
478 DEL SANTO, page 120.
479 CLEO, LANA, page 119.
SUMMIT, page 119.
480 DONNA, KAREN, page 118.
481 WIT, WAG, page 108.
482 KID, page 120.
483 KEN, page 152.
484 CALEX, page 157.
485 LORNE, page 120.
486 TOAD, page 156.
487 T, CAP, TUT, page 155.
488 REA, TL, page 97.
489 SET, LOST, ICE, page 92.
490 GRIT, page 86.
491 XENOS, page 102.
492 CHAPPELLE, page 103.
493 ATTYCELLEY, page 103.
494 GOLD STAR, page 76.
495 GOLCONDA, page 81.
496 ALVIJA, ALPINE, page 82.
497 ZYM, page 78.
498 LOU, page 80.
499 ED, page 121.
900 LUCKY, LADY, PEHU, page 120.
901 CRONIN MINE, page 100.
902 ROCK, page 91.
903 NEWMAN, page 114.
904 SUNRISE, page 99.
905 SILVER TIP (SULTANA), page 85.
906 SILVER STANDARD MINE, page 98.
907 DIAMOND BELLE, BLACK BEAR, BELL, VAN, page 139.
908 SHEL, page 101.
909 NS, NSZ, MIKE, page 106.
910 BOOM, FRANKIE, page 105.
911 HOUSTON, page 105.
912 JIM, page 141.
913 GARY, page 141.
914 SPOOK, PARK, page 142.
915 GUY, page 81.
916 JIM, GREEN, page 151.
917 COLE, page 110.
918 JOE, page 92.
919 BEVELEY, page 105.
920 RED, page 104.
921 FIRE, page 108.
922 FM, HUB, page 83.
923 PILLAR, page 103.
924 OX (OX LAKE), page 93.
925 DEV, page 149.
926 MICK, SKIDOO, SWAMP, page 114.

OMINECA MINING DIVISION

COAST MOUNTAINS

KITIMAT RANGES

Sandifer Lake

GG (No. 454, Fig. 13)

LOCATION: Lat. 53° 35′ Long. 127° 39′ (93E/12E)
Two miles southeast of the west end of Tahtsa Lake, at an elevation of approximately 5,000 feet.

CLAIMS: GG 1 to 20.

ACCESS: By trail from Tahtsa Lake.

OWNER: JASON EXPLORERS LTD., 775, 555 Burrard Street, Vancouver 1.

METALS: Copper, tungsten, bismuth.

WORK DONE: A geological survey of a small section of the GG 5 claim was made and two trenches totalling 50 feet were cut in bedrock. A. Smith, supervisor.

REFERENCE: *B.C. Dept. of Mines,* Bull. No. 42.

DESCRIPTION: A skarn-type deposit of chalcopyrite and other minerals.

HAZELTON MOUNTAINS

NASS RANGES

GOLD STAR (No. 494, Fig. 13)

By N. C. Carter

LOCATION: Lat. 54° 37′ Long. 128° 28′ (103I/9W)
On Kitselas Mountain, 7 miles northeast of Terrace, between elevations of 1,500 and 4,800 feet.

CLAIMS: One hundred and thirty-eight claims, including the GOLD STAR, EASTERN STAR, WRT, AM, WJB, BD, GO, DB, ROB groups.

ACCESS: By helicopter from Terrace. The lower workings may be reached by trail up Hankin Creek from Kitselas station on the railroad line.

OWNER: NEW GOLD STAR MINES LTD., 4644 Lazelle Avenue, Terrace.

METALS: Copper, silver, gold.

WORK DONE: Blasting and trenching in two areas of the claim group to test geochemical anomalies and areas of mineralization encountered while prospecting. An average of four men spent three months on the property.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1928, pp. 145, 146; 1967, p. 81; *Geol. Surv., Canada,* Mem. 205, pp. 52, 53; Assessment Reports Nos. 999 and 1090.

DESCRIPTION:

Mineral occurrences containing values in copper, gold, and silver, on the north side of Hankin Creek, were originally investigated many years ago. The present company was incorporated to explore further these showings, which include the old Copper King and Nugget groups.

Kitselas Mountain is underlain by a sequence of metavolcanic rocks of variable texture and composition. Near the top of the mountain, these rocks have been folded into a northeast-trending synform. Smaller folds of similar trend were noted on the east limb of the major fold structure.

In the vicinity of the old showings, at an elevation of 1,900 feet, recent blasting in a tributary of Hankin Creek has exposed a grey-green schistose hornblende andesite porphyry in which 4-millimetre phenocrysts of plagioclase (andesine) make up 35 per cent of the rock. One-eighth- to one-quarter-inch blebs of pyrrhotite and chalcopyrite occur in a zone roughly 100 by 200 feet. A character sample taken from this zone assayed: Copper, 0.26 per cent, with a trace of silver and nickel. A finer-grained andesite porphyry, of similar composition and texture, occurs near an old adit several hundred feet west of the above showing. The adit was driven along a 2-inch quartz vein which strikes east and dips north.

Two mineralized zones were discovered just south of the summit of Kitselas Mountain in 1969. These occur in a series of cataclasites which occupy the east limb of the synform at the top of the mountain. The metamorphic rocks were derived from crystal lithic tuffs of rhyolite composition, which locally contain one-quarter- to one-half-inch dark lithic fragments which are elongate in the plane of foliation. Similar parallel alignment of quartz and feldspar crystals was also noted in a very fine-grained granulated matrix which contains abundant secondary quartz. Schistose green to grey greywackes and volcanic sandstones occur as lenses in the predominantly siliceous sequence. Andesite dykes of variable width and northeasterly and northwesterly strike cut the metavolcanic rocks. These rocks also exhibit a directional fabric, and are apparently post-mineral in age, suggesting that metamorphism post-dated the period of mineralization. One massive dyke, a diabase with sub-ophitic texture, was noted southwest of the mineralized zones.

Copper and silver mineralization occurs as blebs and stringers of bornite and chalcopyrite in the metarhyolites. A sample taken across 25 feet in one of the blasted trenches assayed: Silver, 0.8 ounce per ton; copper, 0.64 per cent, with a trace of lead and zinc.

JOE, MO, HJ (No. 446, Fig. 13)

LOCATION: Lat. 54° 44′ Long. 128° 20′ (103I/9W)
Two miles north of Pitman, on the Canadian National Railway, at an elevation of 3,500 feet.

CLAIMS: Twenty-eight, including the JOE, MO, and HJ claims.

ACCESS: By rail from Usk, a distance of 8 miles.

OWNER: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

METAL: Molybdenum.

WORK DONE: Some trenching was carried out by three men who spent two weeks on the property. H. Marko, field supervisor.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1959, p. 15; 1964, p. 47.

BULKLEY RANGES

Zymoetz River

CROESUS (No. 448, Fig. 13)

By N. C. Carter

LOCATION: Lat. 54° 32′ Long. 128° 27′ (103I/9W)
On the west side of Kleanza Mountain, 5 miles east of Terrace, between elevations of 500 and 1,000 feet.

CLAIMS: Thirty-four claims.

ACCESS: By logging-road, branching off the north Zymoetz River road, 1 mile south of Highway No. 16.

OWNER: Kleanza Mines Ltd.

Operator: NITTETSU MINING CO. LTD., 404, 470 Granville Street, Vancouver 2; H. Horiuchi in charge of work.

Metal: Copper.

Work Done: The property was geologically mapped and 10 bulldozer trenches totalling 8,000 feet were completed. Two contractor and three company employees were employed for two and one months respectively. At the Gem showing, on that part of the property not optioned to Nittetsu, some trenching was done by the company.

References: *Minister of Mines, B.C.,* Ann. Rept., 1967, pp. 80–82; Assessment Reports Nos. 1234 and 1942.

DARDANELLE (No. 447, Fig. 13)

Location: Lat. 54° 29′ Long. 128° 13′ (103I/8E)
North side of the Zymoetz River, 11 miles southeast of its confluence with the Skeena River.

Claims: Mineral Lease M-88, consisting of seven reverted Crown-granted claims, including MONEYMAKER 1 to 3 and McNEIL 1 to 4.

Access: By helicopter from Terrace airport or by old logging-road along the north side of the Zymoetz River.

Owner: UNIVEX MINING CORP. LTD., 215, 744 West Hastings Street, Vancouver 1.

Metals: Gold, silver, copper, lead, zinc.

Work Done: Surface and underground workings were mapped and soil samples were taken. Seventeen hand and bulldozer trenches were made, totalling 2,500 feet, after 3 miles of road was constructed to the property. The old main adit portal was cleaned out, dewatered, and retimbered. Three men spent three and one-half months on the property. J. Patrick Crean, exploration manager.

Reference: *Geol. Surv., Canada,* Mem. 329, pp. 78, 79.

ZYM (No. 497, Fig. 13)

By N. C. Carter and H. Bapty

Location: Lat. 54° 27′ Long. 128° 08′ (103I/8E)
On the south side of the Zymoetz River, 16 miles from Highway No. 16. Elevations range from 700 to more than 4,000 feet.

Claims: Ninety-seven claims are under option to the operators, including the ZYMOETZ, KELLY, NATIVE, PAN, TAN, and SAINT groups. The 23 ATKOM claims are held by the operating company.

Access: By logging-road from Highway No. 16.

Owner: Native Mines Limited.

Operator: MOKTA (CANADA) LTEE., 619, 744 West Hastings Street, Vancouver 1.

Metals: Copper, silver.

Work Done: A topographic map of the area was prepared and silt samples were collected over the entire claim group. Geological mapping was carried out over the claims and surface and underground workings were mapped in detail. Four hundred feet of trenches were blasted and an adit and drift, totalling 1,000 feet, of underground workings were driven. Five company personnel, under the supervision of J. P. Nicolet, spent six months on the property, while eight contract miners were at work for 1½ months.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1966, pp. 79, 80.

Description:

Copper mineralization was discovered five years ago on the steep slope south of the Zymoetz River, and 7,000 feet of drilling was done in 1966 and 1967.

The property is underlain principally by Hazelton group volcanic rocks which occupy a northerly trending antiformal structure. The volcanic rocks include red tuff and breccias and grey-green porphyritic basaltic andesites which feature 2- to 6-millimetre phenocrysts of plagioclase (andesine). The west limb of the antiform has been intruded by a stock-like mass of fine- to medium-grained diorite, which locally contains abundant secondary potash feldspar. The intrusive mass, elongate in an east-west direction, measures roughly one-half by 1 mile. Also of intrusive origin are irregular lenses or sills of fine-grained buff-coloured rhyolites which cut the volcanic rocks in the upper showings area.

Two areas of mineralization have been investigated along the eastern margin of the diorite mass. Malachite stain is widespread at the lower showing at an elevation of 1,550 feet. There, chalcopyrite occurs in a pink diorite as disseminations in the rock matrix and in quartz veinlets which are rimmed by potash feldspar. At the upper showings, at an elevation of 1,700 feet, intensely fractured and sheared rhyolite contains stringers and blebs of bornite and chalcopyrite.

GRIZZLEY, GLEN, SNOWSHOE, SNO (No. 445, Fig. 13)

Location: Lat. 54° 33′ Long. 128° 03′ (103I/9E)
Holdings include claims on the north side of Treasure Mountain and in the Legate Creek area. Elevations range from 4,000 to 6,000 feet.

Claims: SNO, LEA, GRIZZLEY, MOUNTAINEER, REX, CARMIN, etc., approximately 100 claims.

Access: By helicopter from Terrace, a distance of 25 miles. Part of the property is accessible by road along the Zymoetz River.

Owner: GLEN COPPER MINES LIMITED, 789 West Pender Street, Vancouver 1.

Metals: Copper, silver.

Work Done: Two men were employed for four months trenching and blasting. The CARMIN and REX claims in the Legate Creek area were geologically mapped.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 80.

Description: Claims include the old MONTANA and WELLS mineral showings.

ALLIE (No. 444, Fig. 13)

Location: Lat. 54° 34′ Long. 127° 49′ (93L/12W)
North of Limonite Creek, between elevations of 4,000 and 5,000 feet in the Telkwa Pass.

Claims: ALLIE 1 to 44.

Access: From Smithers by helicopter, a distance of 31 miles.

Owner: R. Woolverton.

Operator: PACIFIC PETROLEUMS LTD., 504, 580 Granville Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: Geological mapping and an airborne magnetometer and electromagnetic survey were carried out over the entire claim group. Ground geophysical surveys, including magnetic, electromagnetic, and induced polarization, and geochemical soil sampling were conducted on the ALLIE 1, 2, 11, 12, 19, 20, 25, 26, and 44 claims.

Description: A copper and molybdenum geochemical soil anomaly and an induced polarization anomaly occur near outcrops of biotite feldspar porphyry.

ZAP (No. 458, Fig. 13)

Location: Lat. 54° 34′ Long. 127° 42′ (93L/12E)
Surrounding Top Lake in the Telkwa Pass, 27 miles west-southwest of Telkwa, at 2,500 to 5,000 feet elevations.

Claims: ZAP 1 to 40.

Access: By helicopter from Terrace, 35 miles to the west.

Owner: HANS E. MADEISKY, 17, 558 Howe Street, Vancouver 1.

Metals: Copper, iron, silver, gold.

Work Done: Reconnaissance geological and geochemical soil, silt, and rock-chip surveys.

Reference: Assessment Report No. 2129.

By N. C. Carter

LOU (No. 498, Fig. 13)

Location: Lat. 54° 51′ Long. 127° 42′ (93L/13E)
Immediately west of Louise Lake, 22 miles west of Smithers.

Claims: LOU 1 to 178, inclusive.

Access: By float plane or helicopter from Smithers.

Owner: Mastodon-Highland Bell Mines Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Metals: Copper, some molybdenum and silver values.

Work Done: The property was optioned by the owners in late 1969. Prior to that time, Mastodon-Highland Bell Mines Limited performed induced polarization and magnetometer surveys and constructed seven bulldozer trenches totalling 720 feet in length. Geological mapping was conducted over the central part of the claim group.

Reference: *B.C. Dept. of Mines & Pet. Res.*, Map 69-1.

Description:

The area covered by the claims is one of relatively moderate relief, and rock exposures are confined to bulldozer trenches and a small creek near the west end of Louise Lake. A prominent feature is the intense iron-staining in and near the trenches.

The trenched area is underlain by a light-grey to white feldspar porphyry of uniform appearance. The rock is of dacite composition and 20 per cent by volume consists of ragged 1- to 2-millimetre phenocrysts of feldspar, now completely altered to sericite and clay minerals, set in a fine-grained matrix of quartz and sulphide minerals. The porphyry is cut by closely spaced $\frac{1}{16}$- to $\frac{1}{8}$-inch quartz-filled vertical fractures which strike predominantly northeast and east.

Metallic minerals occur in quartz veinlets and fractures and as disseminations in the rock matrix. Most abundant are pyrite and marcasite; copper values are associated with bluish-grey tennantite, which commonly occurs as a coating on the iron sulphides. A covellite tarnish on tennantite is common. Less common copper minerals include bornite and chalcopyrite, and molybdenite was noted in one of the trenches.

GUY (No. 915, Fig. 13)

Location: Lat. 54° 47′ Long. 127° 26′ (93L/14W)
Adjoining Dennis Lake to the northwest, 11 miles due west of Smithers.

Claims: GUY 1 to 30 and 1 to 5 Fractions.

Access: By road, 14 miles from Smithers.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: One hundred and twenty-five samples collected for a geochemical survey.

Chimdemash Creek

GOLCONDA (No. 495, Fig. 13)

Location: Lat. 54° 38′ Long. 128° 20′ (103I/9W)
Three miles east of Usk, on the north slope of Bornite Mountain, at an elevation of 2,000 feet.

Claims: Fifty-three, including Mineral Leases M-19, M-78, M-87, and recorded claims NIP 1 to 4, 9 ,10, TUK 1 to 29, SHA 1 to 8, Fractions A and B.

Access: By road and trail or by helicopter from Terrace, 12 miles to the southwest.

Owner: SHASTA MINES & OILS LTD., 1390 Pemberton Avenue, North Vancouver.

Metals: Copper, silver.

Work Done: Detailed geological mapping was completed over the FOUR ACES and GOLCONDA claims and an induced polarization survey and soil sampling were carried out over the entire claim block. Eight trenches were made and some stripping was done. A rough road was cleared from Highway No. 16 to the camp at an elevation of 2,000 feet. Two drills completed 13 holes totalling 2,100 feet. Four company and eight contractor personnel were employed for three and two months respectively.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 82; 1968, p. 108; *Geol. Surv., Canada,* Mem. 205, pp. 45, 46; Assessment Reports Nos. 2175 and 2176.

Description:

On the GOLCONDA claim at an elevation of 2,000 feet a buff-coloured, fine-grained feldspar-porphyry dyke occupies an east-striking steeply south-dipping shear zone in fractured andesitic flows and tuffs. Width of the shear zone and dyke ranges from 1 to more than 4 feet, and the dyke contains blebs and disseminations of bornite and chalcopyrite. Malachite stain is widespread in the vicinity of the dyke.

North and west at an elevation of 1,500 feet along the road linking the camp with Highway No. 16, a felsite dyke similar to that described previously is poorly exposed in a trench. Both the dyke and the horizontal volcanic country rocks are intensely sheared. The dyke contains disseminated chalcopyrite, galena, sphalerite, and pyrite. A grab sample of the dyke material assayed: Gold, 0.01 ounce per ton; silver, 2.8 ounces per ton; copper, 1.27 per cent; lead, 0.25 per cent; zinc, 1.21 per cent.

Kleanza Creek

ALVIJA (No. 496, Fig. 13)

By N. C. Carter

LOCATION: Lat. 54° 34′ Long. 128° 09′ (103I/9E)
On the north side of Kleanza Creek, 10 miles east of Highway No. 16, between elevations of 1,600 feet and 2,500 feet.

CLAIMS: One hundred and eight, including the ALVIJA, ALPINE, and SOUX claims.

ACCESS: By logging-road and four-wheel-drive road along the north side of Kleanza Creek to the camp at 1,650 feet elevation.

OWNER: ALVIJA MINES LTD., 642 Clark Drive, Vancouver 6.

METALS: Copper, silver.

WORK DONE: Geological mapping and soil sampling were carried out over the central part of the claim group. Five hundred feet of bulldozer trenching was completed and five holes, totalling 2,500 feet, were drilled. An average crew of five men spent six months on the property.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 107; *Geol. Surv., Canada,* Mem. 212, pp. 16, 17.

DESCRIPTION:

The property was originally located as the Lucky Jim in 1908. Early work to test copper mineralization included a shallow shaft and a short adit. A second adit was driven in 1929 by The Consolidated Mining and Smelting Company of Canada, Limited. In 1967 the present company relocated the ground and carried out surface exploratory work in the vicinity of the original showings. In 1968, 1,000 feet of drilling done in four angle holes indicated the presence of three additional mineralized shear zones parallel to the original northwest striking, steeply dipping zone. Further drilling in 1969 demonstrated these mineralized zones to be of limited extent.

Purple and green tuffs and breccias of dacite to dacitic-andesite composition are the major rock types seen in the vicinity of the old workings. Epidote alteration is a common feature and lithic fragments ranging in size to several inches were noted. At the main surface showing, the fragmental rocks are intercalated with a green to purple dacite porphyry in which 25 per cent of the rock by volume consists of 2-millimetre buff andesine phenocrysts. The volcanic rocks are intensely fractured and sheared, the most common fracture direction being northwesterly. A 3-foot wide chlorite-rich basic dyke, observed in the lower adit, strikes northwest and dips east and clearly post-dates the period of fracturing.

The main surface showing is exposed by a trench at an elevation of 2,175 feet. Northwest striking, steeply dipping fractures are spaced 2 to 5 inches apart and are coated with malachite. Bornite occurs in fractures, but more commonly as disseminations in the rock matrix. A chip sample taken across an exposed width of 25 feet assayed: Copper, 3.60 per cent; silver, 1.9 ounces per ton.

Below the surface showing, the upper adit was driven 40 feet at an elevation of 2,035 feet along a north-striking, steeply east-dipping shear zone. Malachite and limonite staining is widespread and bornite occurs as fine-grained disseminations. A chip sample taken across an exposed 4-foot width at the face assayed: Copper, 3.43 per cent; silver, 1 ounce per ton. On the adit dump, 2- to 4-millimetre blebs and crystals of bornite, set in quartz and enclosed in 1- to 2-inch haloes of epidote, were noted.

The lower adit is some 150 feet long and was driven along the same shear structure 40 feet below the upper adit. Two mineralized zones of undetermined width were observed at the portal and halfway to the face. Both of these contain some finely disseminated bornite. At the face of the adit, streaks and disseminations of bornite occur in an intensely fractured zone. A chip sample across 40 inches assayed: Copper, 2.50 per cent; silver, 1.10 ounces per ton.

Legate Creek

FM, HUB (No. 922, Fig. 13)

LOCATION: Lat. 54° 39.5′ Long. 128° 05.5′ (103I/9E)
On the east branch of the headwaters of Legate Creek, at 4,400 feet elevation.

CLAIMS: FM 1 to 6, HUB 1 to 20, FORGETFUL 1 to 4 (formerly the M&M and M&K groups).

ACCESS: By road, 24 miles from Terrace.

OWNER: HUB MINING & EXPLORATION LTD., 605 Comox Road, Nanaimo.

METALS: Copper, lead, zinc.

WORK DONE: The underground workings and FM 1 and 2 and HUB 1 to 4 claims were mapped geologically. Three trenches, total length 200 feet, and six pits, total depth 60 feet, were blasted. Twelve miles of road was constructed along Legate Creek. E. Siwicky, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1929, p. 153; 1967, p. 83; 1968, p. 108.

Seven Sisters Peaks

MAG (No. 414, Fig. 13)

LOCATION: Lat. 54° 56.5′ Long. 128° 13.5′–16.5′ (103I/16E, 16W)
On the southwest slope of Seven Sisters Peaks, at approximately 4,700 feet elevation.

CLAIMS: MAG 1 to 39. The claims are in two groups, 2 miles apart, the REGA and JACKAL groups lie between.

ACCESS: Seven and one-half miles from Highway No. 16 by four-wheel-drive vehicle.

OWNER: MAGNETRON MINING LTD., 2020, 777 Hornby Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE: The surface workings were mapped, a 10-foot-long trench was made, and 6 line-miles of magnetometer survey was carried out on the Flint Creek or western portion of the claims. C. Ager, supervisor.

DESCRIPTION: Sphalerite, galena, pyrite, and arsenopyrite occur as veins and lenses in folded and faulted sedimentary rocks.

REGA (No. 415, Fig. 13)

LOCATION: Lat. 54° 57′ Long. 128° 14′ (103I/16E)
On the southwest slope of Seven Sisters Peaks, at approximately 5,700 feet elevation.

CLAIMS: REGA 1 to 33.

ACCESS: From Highway No. 16, 7½ miles by four-wheel-drive vehicle.

OWNER: MAGNETRON MINING LTD., 2020, 777 Hornby Street, Vancouver 1.

Metals: Silver, lead, zinc, copper.

Work Done: The claims and surface workings were mapped and a magnetometer survey was made along 10 line-miles on the REGA 1 to 3, 18, and 23 claims. A trench, length 100 feet, was bulldozed; 2 miles of road was constructed; and an X-ray hole, length 74 feet, was diamond drilled. G. J. Penner was in charge.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 109; Assessment Report No. 2016.

Description: Galena, sphalerite, pyrite, pyrrhotite, and chalcopyrite occur as veins and lenses in folded and faulted sedimentary rocks.

JACKAL (No. 416, Fig. 13)

Location: Lat. 54° 56′ Long. 128° 14′ (103I/16E)
On the southwest slope of Seven Sisters Peaks, at approximately 5,300 feet elevation.

Claims: JACKAL 1 to 6. The showings were formerly located as the WAVERLEY.

Access: From Highway No. 16, 8½ miles by four-wheel-drive vehicle.

Owner: Seven Sisters Mining Ltd.

Operator: MAGNETRON MINING LTD., 2020, 777 Hornby Street, Vancouver 1.

Metals: Silver, lead, zinc, copper.

Work Done: The claims and surface workings were topographically mapped and 7 line-miles of magnetometer survey was carried out on the JACKAL 4 and 5 claims. By bulldozer, nine trenches, totalling 1,239 feet, were dug through overburden and 36,200 square feet of bedrock was stripped. Five trenches, for a total length of 104 feet, were cut in bedrock and one-half mile of road was constructed. Eight X-ray holes totalling 434 feet were diamond drilled. C. Ager supervised the work.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1929, p. 153.

Description: Galena and sphalerite with pyrite, pyrrhotite, chalcopyrite, and arsenopyrite occur in veins and lenses in folded and faulted sedimentary rocks.

NIILO (No. 417, Fig. 13)

Location: Lat. 54° 57.5′ Long. 128° 16.5′ (103I/16W)
At the headwaters of Flint Creek, on the southwest slope of Seven Sisters Peaks, at 4,300 feet elevation.

Claims: NIILO 1 to 12, on showings formerly located as the SEVEN SISTERS.

Access: Six and one-half miles from Highway No. 16 by four-wheel-drive vehicle.

Owner: MAGNETRON MINING LTD., 2020, 777 Hornby Street, Vancouver 1.

Metals: Silver, lead, zinc, copper, iron.

Work Done: The claims were surveyed by compass and chain. Two trenches were bulldozed to a total length of 200 feet, one-half mile of road was built, and two X-ray holes totalling 112 feet were diamond drilled. C. Ager was in charge.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1929, p. 153.

Description: Galena, pyrite, sphalerite, and pyrrhotite occur in lenses and veins in faulted and folded sedimentary rocks.

Rocher Déboulé Range

SILVER TIP (SULTANA) (No. 905, Fig. 13)

Location: Lat. 55° 06′ Long. 127° 32′ (93M/4E)
At the headwaters of the south fork of Boulder Creek, 10 miles northwest of Moricetown, at 5,200 feet elevation.

Claims: SILVER TIP 1 to 50 (formerly SULTANA, LAST CHANCE, LITTLE WONDER, and SNOWSHOE).

Access: By a tractor road which runs west from Highway No. 16 along the south side of Boulder Creek, a distance of about 6 miles.

Owner: SULTANA SILVER MINES LIMITED, 1025, 510 West Hastings Street, Vancouver 2.

Metals: Copper, silver, molybdenum.

Work Done: Most of the claims were topographically and geologically surveyed, and two holes, total length about 1,000 feet, were diamond drilled. P. Street, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1923, p. 107; 1967, p. 85; Assessment Report No. 92.

Description: A stockwork of pyrite and tetrahedrite-bearing quartz veins and fracture fillings of chalcopyrite and molybdenite occur in granodiorite.

Hudson Bay Range

GLACIER GULCH (No. 442, Fig. 13)

Location: Lat. 54° 49′ Long. 127° 18′ (93L/14W)
Five miles northwest of Smithers in Glacier Gulch, on the east side of Hudson Bay Mountain.

Claims: Four hundred and twenty-five recorded and Crown-granted claims.

Access: Eight miles by road from Smithers.

Owner: Fourteen Crown-granted and 30 recorded claims are held under option from W. Yorke-Hardy and associates.

Operator: CLIMAX MOLYBDENUM CORPORATION OF BRITISH COLUMBIA LIMITED, P.O. Box 696, Smithers.

Metals: Molybdenum, tungsten.

Work Done: A geochemical survey was made on the Z and JAY claims. In November the adit was reopened and ventilated and 5,200 feet of track was ballasted.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 86–90; 1967, p. 90; 1968, p. 120; Assessment Reports Nos. 1730 and 2245.

MIDNIGHT, CANADIAN CITIZEN, AMERICAN CITIZEN (No. 441, Fig. 13)

Location: Lat. 54° 45′ Long. 127° 15′ (93L/14E)
Claims cover the lower slopes of Hudson Bay Mountain, immediately west of Smithers.

Claims: One hundred and forty-four, including SEYMOUR 5 to 10, SL 1 to 52, BV 1 to 74, NF 1 to 22.

Access: From Smithers by road, a distance of 2 miles.

Owner: BUVAL MINES LTD., 812, 1177 West Hastings Street, Vancouver 1.

Metals: Silver, lead, zinc, copper, gold.

WORK DONE: Work was confined to the SEYMOUR 8 to 10 claims and included an electromagnetic survey and some geochemical work. Two diamond-drill holes totalling 599 feet were drilled. Six men were employed for one month. Matt Bell, geologist, in charge of work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 90, 91; 1968, pp. 120, 121.

Telkwa Range

GRIT (No. 490, Fig. 13)

LOCATION: Lat. 54° 35′ Long. 127° 14.5′ (93L/11E)
Just west of Tenas Creek, 11 miles southwest of Telkwa.

CLAIMS: GRIT 1 to 20, known as TENAS group.

ACCESS: By helicopter.

OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

WORK DONE: Geochemical survey.

REFERENCE: Assessment Report No. 1931.

HB, AJ (HUNTER) (No. 440, Fig. 13)

LOCATION: Lat. 54° 31′ Long. 127° 10′ (93L/11E)
Hunter Basin in the Telkwa Range, between elevations of 5,000 and 7,500 feet.

CLAIMS: Sixty-eight, including the HB, AJ, SCOUT, and NORTH claims, formerly HUNTER.

ACCESS: By four-wheel-drive road from Telkwa, a distance of 15 miles.

OWNER: Hunter Basin Mines Ltd.

OPERATOR: ALRAE ENGINEERING LTD., 850 West Hastings Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE: A topographic map of the property was prepared and the HB and AJ claims were mapped by T. Kikuchi. Six men spent one and one-half months on the property. A. Wall, in charge of work.

DESCRIPTION: Chalcopyrite and bornite occur in veins and as disseminations in tuffs and granitic rocks.

LAVA (No. 476, Fig. 13)

LOCATION: Lat. 54° 31′ Long. 127° 07′ (93L/11E)
East of the head of Webster Creek, between elevations of 4,500 and 6,000 feet.

CLAIMS: Eighty-six, including the LAVA group of 56 claims, WEBSTER 1 to 4, CRATER A1 to H8, OLD TOM 1 and 2, MARMOT 1 to 16.

ACCESS: By helicopter from Smithers, a distance of 20 miles.

OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE: Seven men spent one month on the property collecting geochemical samples and preparing a geological map.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 129, 130.

DESCRIPTION: Pyrite, chalcopyrite, minor bornite, and tetrahedrite occur in siliceous volcanic rocks.

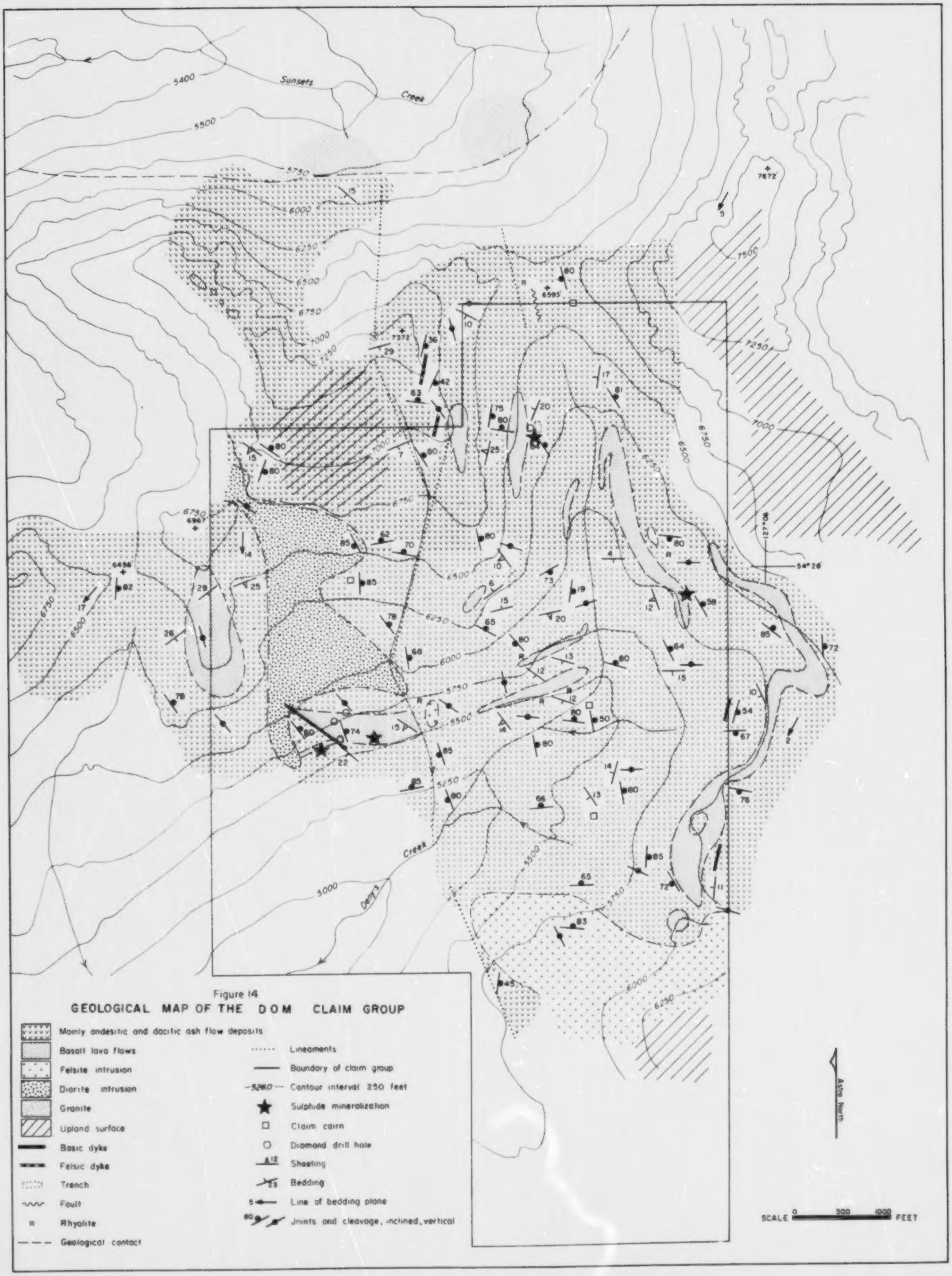

Mainly andesitic and dacitic ash flow deposits
Basalt lava flows
Felsite intrusion
Diorite intrusion
Granite
Upland surface
Basic dyke
Felsic dyke
Trench
Fault
R Rhyolite
Geological contact
Lineaments
Boundary of claim group
5260 Contour interval 250 feet
Sulphide mineralization
Claim cairn
Diamond drill hole
12 Sheeting
25 Bedding
5 Line of bedding plane
80 Joints and cleavage, inclined, vertical
Astro North
SCALE 0 500 1000 FEET
Sunsets Creek
Creek
Dairy's
54°28'
7672
6593
7372
6967
6456
5000
5250
5400
5500
5750
6000
6250
6500
6750
7000
7250
7500

Figure 14

GEOLOGICAL MAP OF THE DOM CLAIM GROUP

DOM (No. 465, Fig. 13)

By B. N. Church

Location: Lat. 54° 28′ Long. 127° 10′ (93L/6E)

The property is in the Telkwa Range, between elevations of 5,000 and 7,200 feet, at the head of Denys Creek.

Claims: DOM 1 to 26, DOMINION 1 and 2.

Access: Twenty-four miles by helicopter, almost due south of Smithers.

Owners: The two DOMINION claims are under option from THOMAS and MARY GEORGE of Smithers and the DOM claims are owned by FALCONBRIDGE NICKEL MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: The property was geologized on a scale of 200 feet to 1 inch and a geochemical soil survey was performed. Six AX holes totalling 685 feet were diamond drilled. The work was supervised by D. H. Brown.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, pp. 97–100; 1968, p. 128; *B.C. Dept of Mines*, Map 69-1.

Description:

The property is in an erosional amphitheatre cut by stream and glacial action in a rolling upland surface. This surface is visible above the 6,000-foot contour in the central Telkwa Range. Valley walls in the area are steep and are traversed by numerous active talus fans. Terraces displayed on some valley walls are apparently the result of strip erosion along sheeting joints and near horizontal bedding planes.

Glacial deposits are generally scarce; however, a small lateral moraine about 300 feet long was found in the central part of the claim group immediately north of Denys Creek.

The bedrocks are gently dipping maroon and olive-grey Hazelton volcanic strata and minor igneous intrusions (*see* Fig. 14). The exposed Hazelton section consists of about 2,500 feet of well-stratified pyroclastic deposits and a few basalt lava flows. Arc-fusion of 34 representative volcanic rock samples shows a wide range in composition, but dacitic types predominate (*see* Fig. 15): Rhyolite, 6 per cent; dacite and dacitic andesite, 57 per cent; basaltic andesite, 11 per cent; and basalt, 20 per cent.

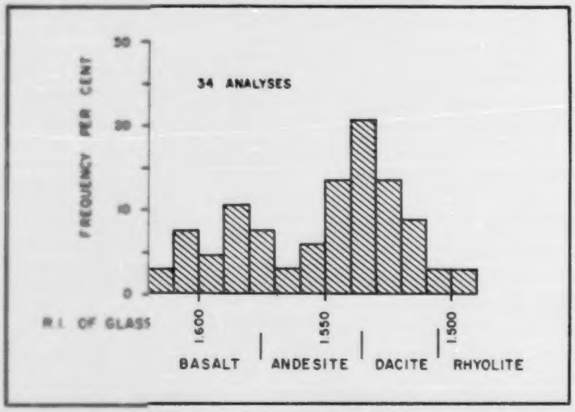


Figure 15. DOM group, frequency distribution of Hazelton volcanic rocks in Dominion Basin.

Chemical Analyses of Volcanic Rocks from the Dominion Basin

	1	2
SiO_2	48.82	59.08
TiO_2	1.37	0.99
Al_2O_3	17.47	17.54
Fe_2O_3	7.18	4.13
FeO	6.49	3.41
MnO	0.48	0.14
MgO	3.34	2.63
CaO	5.72	1.73
Na_2O	4.72	3.14
K_2O	0.90	4.28
CO_2	0.01	0.01
H_2O^-	0.13	0.06
H_2O^+	2.71	2.16
Cu p.p.m.	48	43
Pb p.p.m.	100	100
Zn p.p.m.	403	130
R.I. (arc fusion)	1.601	1.587

1. Epidotized vesicular basalt northeast of the bend in Denys Creek at the elevation of 6,000 feet; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Petroleum Resources.
2. Shardy dacitic andesite tuff northwest of the bend in Denys Creek at the elevation of 6,000 feet; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Petroleum Resources.

The acid pyroclastic debris appears to be mainly avalanche flow breccia (*see* Plate VA). Single beds of this material range from 10 to 20 feet thick. In places near the base of the beds, pumice blocks are flattened and elongated. The upper surfaces of some of the most siliceous beds contain numerous epidote knots about half an inch in diameter.

Thinly bedded pyroclastic zones occur throughout the section. These contain graded lithic volcanic fragments and layers of accretionary lapilli (*see* Plate IVA).

Basalt lava flows are locally intercalated with the pyroclastics. The lava forms " shoe-string-like " bodies elliptical in cross-section. Some flows are as much as 4,000 feet long and 200 feet wide. Texturally, the lava is highly vesicular and locally charged with amphibole phenocrysts 2 to 4 milimetres in diameter. Vesicles and larger gas cavities are typically lined or filled with prismatic quartz crystals and abundant pistachio green epidote, and some calcite, chlorite, grossularite garnet, and metallic minerals.

The main igneous intrusions consist of diorite and felsite bodies. In over-all structure the diorite is a sill which appears to swing upward discordantly cutting the strata in the west part of the claim group. The following mineral composition is based on thin-section analysis of three mesocratic diorite samples:—

	Per Cent
Plagioclase	63
Amphibole	12
Chlorite	13
Epidote	3
Opaque minerals	5
Quartz	3
Sphene	1
Apatite	Trace

The main felsite intrusion is in the south part of the claim group where only the north contact was mapped. A small apophysis of what appears to be the same intrusion lies immediately southeast of the diorite body and north of Denys Creek.

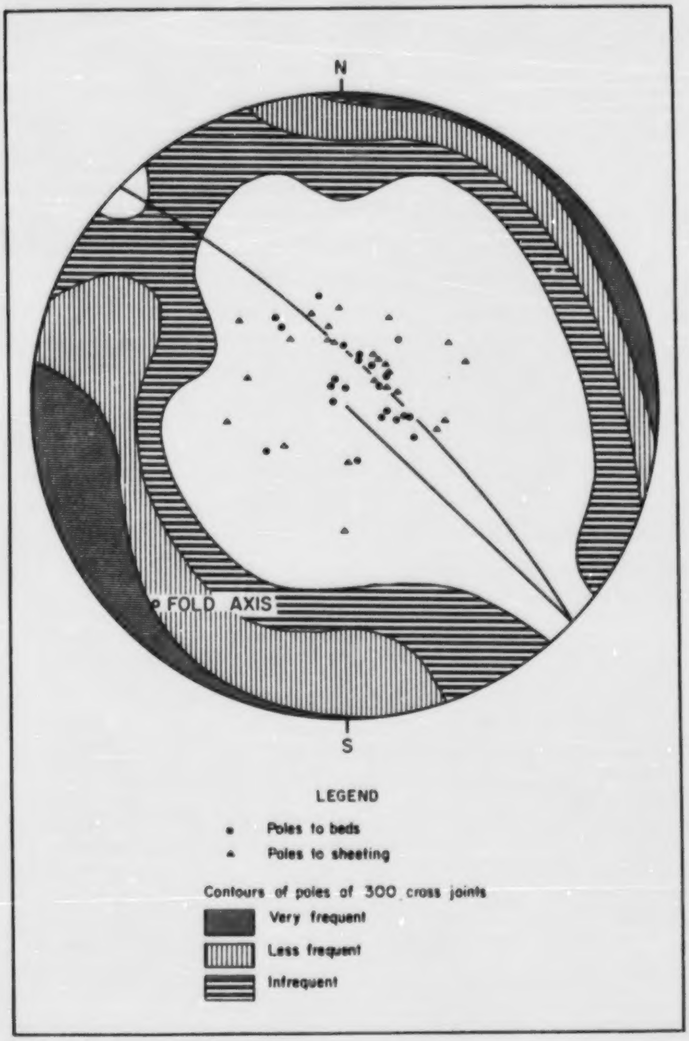

N
FOLD AXIS
S
LEGEND
Poles to beds
Poles to sheeting
Contours of poles of 300 cross joints
Very frequent
Less frequent
Infrequent

Figure 16. DOM group, equal area plot of beds and fractures.

The rock is leucocratic, quartzofeldspathic, and commonly fine grained with sparse rectangular feldspar phenocrysts 2 to 3 millimetres long.

Owing to important compositional differences, it seems unlikely that the diorite and felsite can be correlated with the Sunsets Creek pluton to the north. Analyses by Sutherland Brown (1967) show that the pluton is rich in both quartz and potassic feldspar. Present studies show that the diorite contains only about 3 per cent quartz and stain tests indicate that the felsite is rather poor in potassium feldspar.

Although no major fold axis could be located in the field, a statistical compilation of cross-joints, sheeting, and bedding-plane attitudes, shown on Figure 16, indicates gentle warping of the strata about an axis of 225 degrees plunge 7 degrees

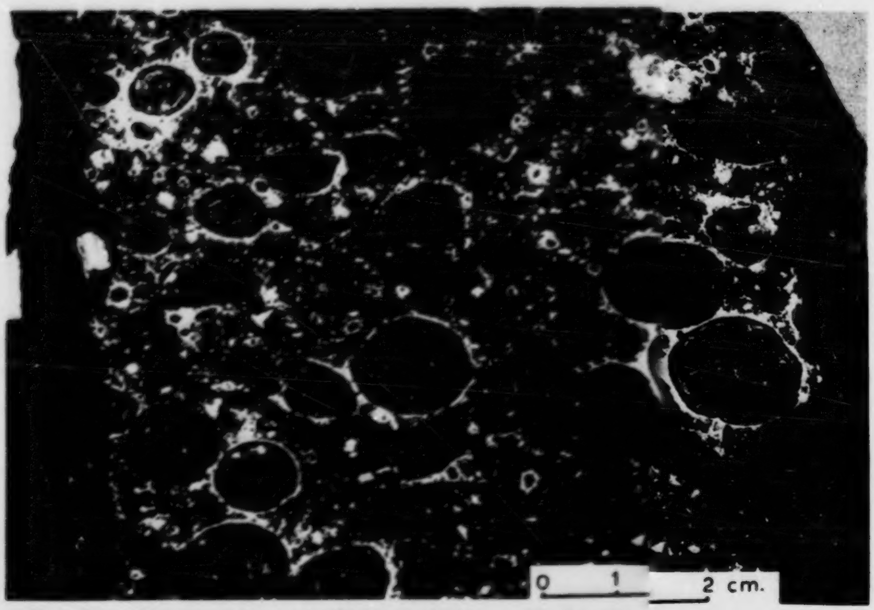


Plate IVA.—Giant accretionary lapilli from a dacitic pyroclastic unit north of Denys Creek, Dominion Basin.

Plate IVB.—Pillow-like structures in epidotized vesicular basalt near the headwaters of Denys Creek, Dominion Basin.

southwest. This direction is tangential to the boundary of the Sunsets Creek pluton and may be the result of thrusting aside of Hazelton beds during intrusion as suggested by Sutherland Brown (1967). This axis is also subparallel to the regional trend of the Hazelton succession as indicated on Department of Mines and Petroleum Resources Map 69-1.

Faulting trends northerly and displacement appears to be slight. A fault lineament bisects the west central part of the property and a short subparallel lineament cuts the west side of the saddle at the north claim boundary. A considerable amount of barren vein quartz was found in the talus near the latter lineament.

Two distinct types of mineralization are recognized in this area—fissure veining and cavity filling. The mineral showing on the DOMINION claims near the north boundary of the property is the fissure-vein type. A pit near the 6,300-foot elevation yielded specimens of chalcopyrite, pyrite, sphalerite, galena, and bornite(?) in quartz. The vein is about 3½ feet wide and appears to dip gently to the west. The hangingwall is composed of a brittle andesite tuff (R.I. 1.568) and the footwall is a dense magnetite-rich unit, iron, 54.75 per cent; manganese, 0.79 per cent; titanium, 0.05 per cent. The geographical and structural setting suggests that the vein may be an extension of the fault-vein system observed in the saddle several hundred feet to the north. The observed shallow dip of the vein is thought to be abnormal and may be the result of local deflection of the fissure fracture along a bedding plane, the over-all dip of the vein probably being steep.

The type of mineralization associated with cavity filling is widespread in the basalts throughout the area. This mineralization is thought to be a primary feature related to the chemistry and volatile content of the basalt lava. The metallic minerals found in vugs and vesicles are mainly specular hematite, chalcopyrite, and locally magnetite and chalcocite. The cavities range in size from vesicles 3 or 4 millimetres in diameter to openings as much as 1 foot across. The lava is commonly charged with epidote in and around the cavities, suggesting intense metasomatism no doubt assisted by volatile action. In places, pillow-like structures indicate that the lava may have been extruded subaqueously (*see* Plate IVB).

SR, PG, SC (No. 475, Fig. 13)

LOCATION: Lat. 54° 29′ Long. 127° 32′ (93L/5E)
Starr Creek basin, between elevations of 3,500 and 4,000 feet.

CLAIMS: Ninety-six, including the RB, TK, HK, BL, PG, SC, and SR claims.

ACCESS: By 25 miles of road from Telkwa.

OWNER: TELKWA MOUNTAIN MINES LTD., 5, 1045 West Pender Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE: Six men spent five month on the claims. Geochemical rock and soil samples were collected and a geological map was prepared by the company's consultant, T. Kikuchi. Some drilling was in progress at the end of the year.

REFERENCE: Assessment Report No. 1623.

DESCRIPTION: Copper and silver mineralization occurs in volcanic rocks of the Hazelton Group.

ROCK (No. 902, Fig. 13)

LOCATION: Lat. 54° 23′ Long. 127° 12.5′ (93L/6E)
On Loljuh Creek, 23 miles west of Houston, at an elevation of approximately 4,500 feet.

Claims: ROCK 107 to 114, 132 to 140.

Access: By helicopter, 28 miles south from Smithers.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Seven line-miles of magnetic and 4 line-miles of electromagnetic surveys.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 91.

Description: Chalcopyrite, bornite, and molybdenite occur as disseminations and fracture-fillings in granodiorite and Hazelton volcanics.

JOE (No. 918, Fig. 13)

Location: Lat. 54° 23′ Long. 127° 13′ (93L/6E)
Astride Loljuh Creek on Lot 4815, 23 miles due west of Houston.

Claims: JOE 1 to 64.

Access: By helicopter, 30 miles from Smithers.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: One hundred and seventy-nine samples collected for a reconnaissance geochemical survey.

Tahtsa Ranges

Nanika Lake

SET, LOST, ICE (No. 489, Fig. 13)

Location: Lat. 53° 49.5′ Long. 127° 26′ (93E/14W)
On mountain top, 5 miles southeast of north end of Nanika Lake.

Claims: SET 12 to 16, LOST 1 to 4, ICE 1 to 5, IT, totalling 15 claims.

Access: Road, 73 miles from Houston.

Operator: SIERRA EMPIRE MINES LTD., 850 West Hastings Street, Vancouver 1.

Metals: Silver, lead, zinc, copper.

Work Done: LOST claims surveyed, surface workings mapped at scale of 1 inch to 100 feet, geology mapped, 3,040 feet of trenching bulldozed to bedrock in 29 trenches, 1½ miles of road constructed, and 17 holes totalling 3,202 feet diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Repts., 1951, p. 118; 1952, p. 97.

Description: Galena, sphalerite, and pyrite occur in veins, and covellite, chalcopyrite, and pyrite occur in disseminations in diorite and altered Hazelton Group rocks near the diorite.

Tahtsa Lake

EMERALD GLACIER MINE (No. 461, Fig. 13)

Location: Lat. 53° 44.5′ Long. 127° 15.5′ (93E/11W)
Between elevations of 6,000 and 6,500 feet on Mount Sweeney, in the Sibola Range north of Tahtsa Lake.

Claims: Mineral Lease 15 (nine EMERALD and GLACIER Crown-granted claims) and 27 recorded claims.

Access: By road from Houston, a distance of 60 miles.

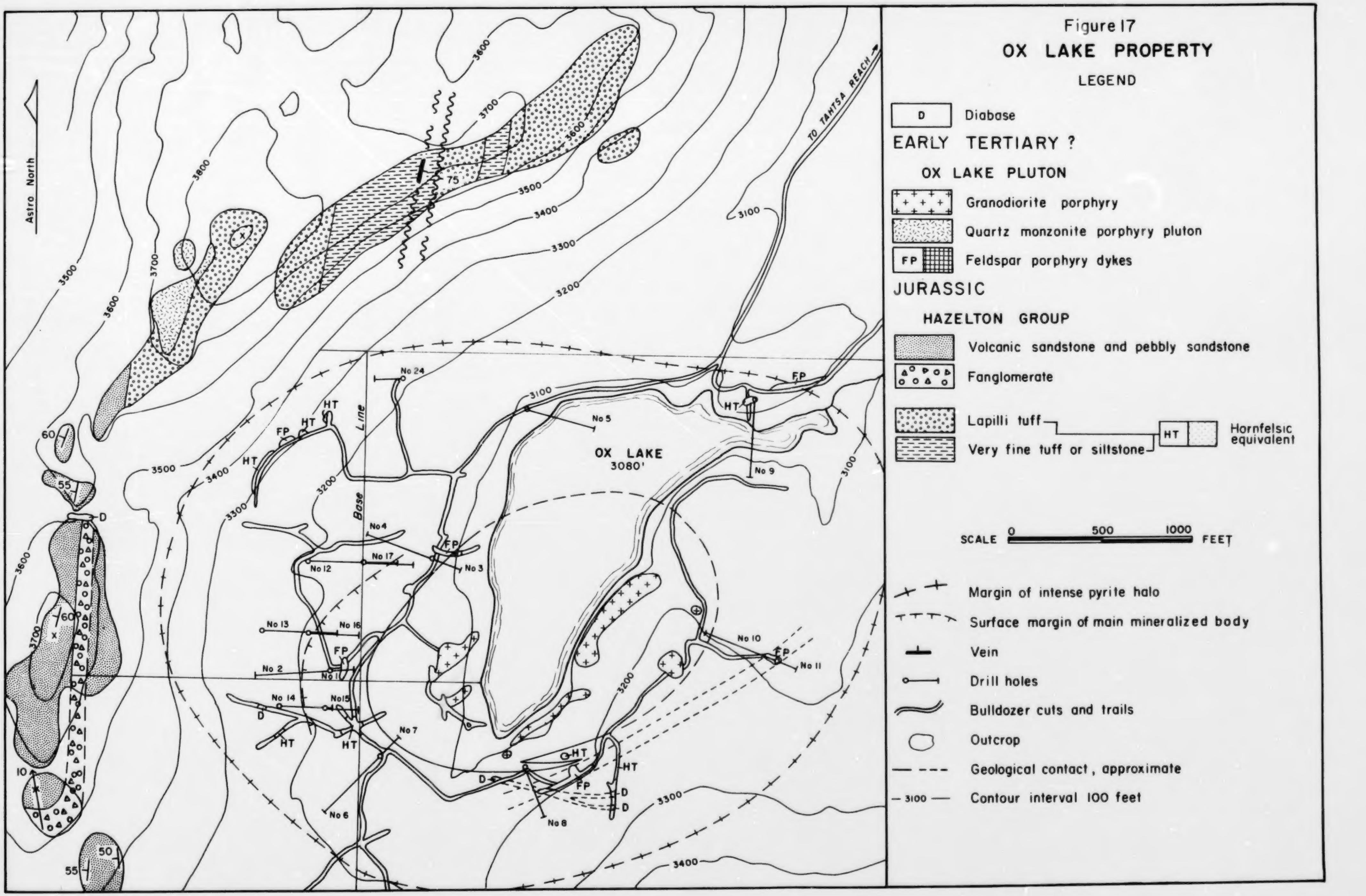


Figure 17
OX LAKE PROPERTY

LEGEND
D Diabase
EARLY TERTIARY ?
OX LAKE PLUTON
Granodiorite porphyry
Quartz monzonite porphyry pluton
FP Feldspar porphyry dykes
JURASSIC
HAZELTON GROUP
Volcanic sandstone and pebbly sandstone
Fanglomerate
Lapilli tuff
Very fine tuff or siltstone
HT Hornfelsic equivalent
SCALE 0 500 1000 FEET
Margin of intense pyrite halo
Surface margin of main mineralized body
Vein
Drill holes
Bulldozer cuts and trails
Outcrop
Geological contact, approximate
3100 Contour interval 100 feet
Astro North
TO TAHTSA REACH
OX LAKE 3080'
Base Line
No 1
No 2
No 3
No 4
No 5
No 6
No 7
No 8
No 9
No 10
No 11
No 12
No 13
No 14
No 15
No 16
No 17
No 24
HT
FP
D
3100
3200
3300
3400
3500
3600
3700
3800
75
60
55
50
10

Owner: PINE GLACIER MINES LTD., 404, 510 West Hastings Street, Vancouver 2.

Metals: Silver, lead, zinc.

Work Done: Two short holes were diamond drilled on surface.

References: *Minister of Mines, B.C.,* Ann. Repts., 1967, pp. 110–113; 1968, p. 141.

GLORY (No. 455, Fig. 13)

Location: Lat. 53° 46′ Long. 127° 25.5′ (93E/14W)
Three miles north of Tahtsa Lake and 5½ miles west of Mount Sweeney, at 5,800 feet elevation.

Claims: GLORY 1 to 20.

Access: From Houston to Tahtsa Lake by road; thence by helicopter.

Owner: JASON EXPLORERS LTD., 775, 555 Burrard Street, Vancouver 1.

Metals: Silver, lead.

Work Done: The surface workings were mapped and two trenches totalling 40 feet were cut in bedrock.

Description: Silver-bearing galena occurs in fractures in gabbro.

OX (OX LAKE PROPERTY) (No. 924, Fig. 13)

By A. Sutherland Brown

Location: Lat. 53° 40.2′ Long. 127° 03′ (93E/11E)
Ox Lake is a small lake 1 mile south of Tahtsa Reach, about 4 miles east of the mouth of Kasalka Creek, elevation 3,080 feet.

Claims: OX 1 to 128.

Access: Via Tahtsa Lake road from Houston to Tahtsa Reach, 80 miles south of Smithers or 75 miles by air from Tyee Lake sea-plane base.

Owners: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2, and AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Geological mapping, magnetometer survey (20 miles), soil survey (600 samples), bulldozer trenching (200 feet), 24 BQ diamond-drill holes totalling 11,110 feet.

Description:

The Ox Lake property was discovered in the late summer of 1968 during regional reconnaissance and prospecting. Recognition of a porphyry body similar to that of Kennco Exploration's Huckleberry deposit hastened the exploration process and drilling was started in the autumn and 4,727 feet was drilled in 11 holes before the end of the year. The 1969 programme was designed to prove the potential of the earlier exploratory drilling and to probe for other targets in covered areas.

The Ox Lake property is in a region flanking the Coast Intrusions that is underlain principally by Jurassic Hazelton Group and intruded by numerous small plutons of variable type and age. The Ox Lake deposit is peripheral to a small granodiorite porphyry plug that intrudes a mixed pyroclastic and sedimentary sequence of the Hazelton Group (*see* Figs. 17 and 18). The plutonic rocks of the plug are virtually identical to those of the Huckleberry deposit which is only 5 miles directly to the west. The following description is based on a visit to the property in July.

The stratigraphy and structure of the Hazelton Group in the vicinity of Ox Lake are imperfectly known. On the ridge west of the lake a sequence of volcanic

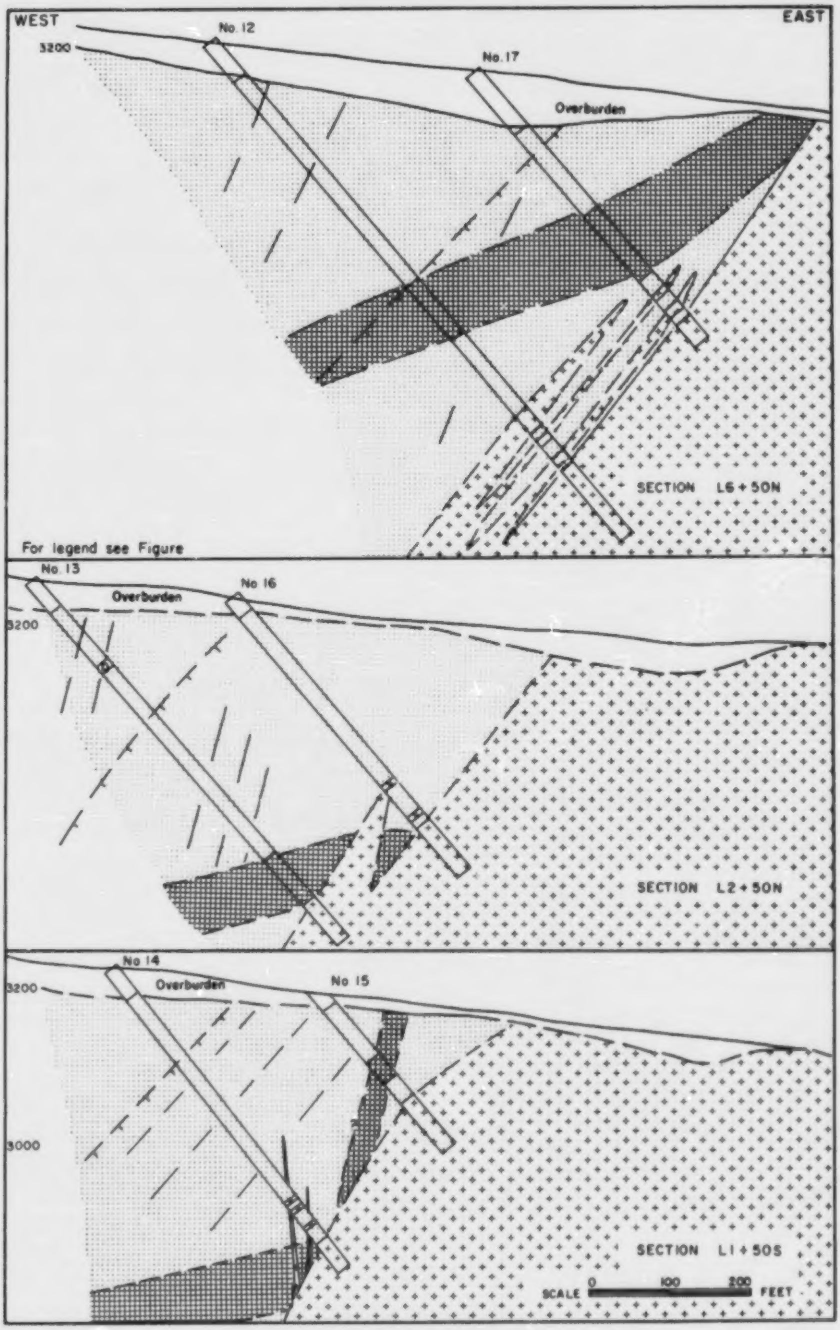

WEST
EAST
3200
No. 12
No. 17
Overburden
SECTION L6+50N
For legend see Figure
No. 13
No 16
Overburden
3200
SECTION L2+50N
No 14
Overburden
No 15
3200
3000
SECTION L1+50S
SCALE
0
100
200
FEET

Figure 18. Ox group, vertical cross-sections along lines of section shown on Figure 17.

sandstones containing a series of discontinuous chert pebble beds is exposed. Intercalated within these rocks are some dark siltstones and a highly heterogeneous sedimentary breccia, possibly a fanglomerate. The latter is composed largely of angular clasts of siltstone and sandstone with some roundstones of more diverse nature that are up to 1 foot in diameter. These rocks strike north and dip westward at about 60 degrees but are involved in a syncline of unknown importance. Outcrop is fairly continuous to the ridge northwest of the lake where a sequence occurs that it apparently grossly conformable with the sedimentary sequence. This is dominated by tuffs and lapilli tuffs, but includes some fine clastic rocks of possible sedimentary origin. Many of the lapilli tuffs are seen microscopically to be formed of dacitic and andesitic fragments that were highly vesicular and hence almost certainly airfall tuffs.

Exposure on the hills south and east of the lake is sparse but seemingly is of mixed hornfelsed tuff and some fine sedimentary rocks. Rocks exposed in the trenches near the pluton are all highly hornfelsic, fractured, and rusty weathering so that their origin is difficult to decide in the field. Microscopic examinations show they also are mostly tuffs. The same is true of the intense hornfels of diamond-drill core of holes drilled in the mineralized body west of the porphyry plug. The attitude of these tuffs and fine siltstone is fairly uniform in all the holes and dips westward either at a small angle or more likely at 50 to 70 degrees.

The stratified sequence is cut by feldspar-porphyry dykes and sills older than the main porphyry plug. These appear to be most numerous northeast of the lake. In the immediate vicinity of the porphyry plug they are bodies which are at most 100 feet thick and which strike northeast and dip about 25 degrees northwestward. One such body and an apparent offshoot from it are important hosts of molybdenum mineralization (*see* Fig. 18). These are rusty weathering, light-grey, dense rocks with cream-coloured feldspar phenocrysts 1 to 3 millimetres long. Microscopically the porphyry is seen to be a quartz monzonite consisting of about 25 per cent plagioclase and rare quartz phenocrysts in a very fine myrmekitic matrix of quartz (25 per cent), potash feldspar (30 per cent), small plagioclase crystals (10 per cent), chlorite (9 per cent), and pyrite (1 per cent). The plagioclase is so altered with very fine epidote, chlorite, etc., that it is never determinable. In the mineralized zone, alteration removes all traces of mafic minerals.

The relationship of the feldspar porphyries is not certain. They are clearly older than the granodiorite porphyry but may be related to the quartz-monzonite porphyry on the northwest ridge with which they are similar in composition and texture. The composition of the latter rock is as follows: Plagioclase, 31 per cent; potash feldspar, 28 per cent; quartz, 31 per cent; biotite and chlorite, 9 per cent; pyrite, 1 per cent. Most of the plagioclase and part of the other main minerals occur as phenocrysts in a very fine myrmekitic to aplitic matrix. However, in the stratified rocks there are rare coarse tuffs that are composed of fragments that look similar to these porphyries. These may, however, be actually intrusive breccias at the distal end of dykes.

The granodiorite porphyry occurs in a cylindrical plug that rakes steeply westward, probably guided by the prevailing dip of strata. At the surface it forms an ellipse with a minor axis about 1,300 feet and a major 2,000 feet long. The plug is composed of very homogeneous rocks without obvious fluxion structure or inclusions, nor is it excessively jointed. In hand specimen it is a distinctive porphyry formed of abundant prominent chunky plagioclase laths 3 to 10 millimetres long with a few good books of biotite or long hornblende needles in a finely speckled pink and black matrix.

The average composition of three specimens is as follows:—

	Volume per Cent	
	Phenocrysts	Total
Plagioclase (An_{40-22})	42.0	44.2
Potash feldspar	0.3	20.3
Quartz	2.0	19.0
Biotite	6.0	8.7
Hornblende	4.7	6.0
Opaque	——	1.7
	55.0	99.9

It is thus a crowded porphyry of highly zoned plagioclase crystals with some mafic phenocrysts in a fine sugary matrix (0.05 millimetre average diameter) of quartz, potash feldspar, and mafics. Plagioclase shows about 10 oscillatory cycles in zoning. Opaque minerals are mainly magnetite but include minor disseminated chalcopyrite and pyrite. Accessory heavy minerals include fairly abundant sphene and apatite.

Alteration is variable but may be intense. At its least it includes some kaolinization of the plagioclase and some alteration of biotite and hornblende to chlorite. At its most intense, adjacent to the mineralized zone, plagioclase is highly altered to sericite and carbonate, mafic minerals to chlorite and muscovite, and potash felspar partly to zeolite.

Also present in the area are some dyke rocks of unknown age. These include diabase and basic feldspar porphyry. Both are quite highly altered and slightly metamorphosed. They seem to be younger than the granodiorite porphyry but are not definitely known to be.

Metamorphism and Alteration

Metamorphism and alteration in the vicinity of Ox Lake both range from intense to slight and are zonally related to the Ox Lake granodiorite porphyry and to a lesser degree the quartz-monzonite porphyry. Remote from these bodies the prevailing level of metamorphism is low, with chlorite and some kaolinite alteration of minerals. A wide annulus about the plug is converted to hornfels by the growth of finely felted new biotite and some actinolite and epidote.

Superimposed on the metamorphism is a younger alteration clearly related to the fracturing and mineralization. Beyond the main altered zone the fracture stockwork is still moderately strong but alteration is slight. Within the fractures, here, thin veinlets of quartz and tourmaline occur. In the fringe area of alteration the abundant fractures commonly contain thin veinlets of pyrite and chlorite. Bordering these, narrow selvages of hornfels are altered to pale buff or green chloritized rock. With increasing intensity on approach to the contact, the selvages widen and restrict the purple-brown biotite hornfels to isolated kernels. This intense form extends 1,000 to 1,300 feet from the contact of the granodiorite. Closer (say 600 feet), the chloritic envelopes are larger and include kaolinization of plagioclase. Fractures are filled with quartz, pyrite, chlorite, and some carbonate and muscovite. Still closer (say 400 feet), there is more kaolinite and there is some silification parallel to quartz-pyrite veins. Closer than this (say 300 feet), the original hornfelsic biotite may have been completely obliterated and sericite becomes important.

Mineralization

The Ox Lake granodiorite-porphyry plug contains minor accessory chalcopyrite. It also has a peripheral zone of copper and molybdenum mineralization mostly external to the plug that in part may be of ore grade. The main mineralized body is concentrated in a body of crescentic plan in the hornfels immediately west of the plug, as shown on Figure 17. The mineralization tends to be of highest grade adjacent to the porphyry-hornfels contact from which it grades slowly outward in the hornfels but changes abruptly to low-grade mineralization on crossing into the porphyry. The outer boundary at any particular grade would tend to be parallel to the granodiorite porphyry-hornfels contact (*see* Fig. 18). The ore minerals consist of chalcopyrite and molybdenite contained almost entirely in dry fractures and veinlets of an intense stockwork. The fracture stockwork is very intense (a fracture every centimetre) adjacent to the porphyry and grades slowly outward, still being intense 1,000 to 1,500 feet from the contact (a fracture every 2 to 3 centimetres). Within the porphyry it is much less and could be called jointing. Fracturing is also notably less in the feldspar porphyry dykes, but these are important host rocks of molybdenum mineralization.

In general, copper mineralization is dominant in the hornfels and almost nonexistent in the feldspar porphyry, whereas molybdenum is concentrated in the porphyry dykes but occurs to some degree in the hornfels, especially close to the granodiorite porphyry contact.

The mineralogy of the ore is dominantly simple but has not been thoroughly investigated. Pyrite in an annulus extending beyond the ore zone forms some 5 to 10 per cent of the rocks. The ore minerals are chalcopyrite and molybdenite, which occur in relatively coarse crystals. Very minor late veins occur formed of sphalerite, pyrite, quartz, and carbonate with cockade structure. A few other unidentified minerals may be present in these veinlets.

Very minor veins that might be part of the mineralized halo occur on the ridges away from the ore zone. In a group of small shears crossing the northwest ridge, veins of quartz, pyrite, and galena occur.

Reserves

The drilling of 1968 outlined a potential orebody. According to a statement by the companies concerned, diamond-drill holes Nos. 1 and 2 contain the following: Copper, 0.285 per cent; molybdenite, 0.085 per cent over 540 feet. Diamond-drill hole No. 4 contains: Copper, 0.41 per cent; molybdenum, 0.067 per cent over 300 feet. The 1969 drilling was on section-lines 400 feet apart with drill-holes drilled east at minus 50 degrees, 250 feet apart. This drilling has shown the body contains 30 million tons of near ore grade.

REA, TL (No. 488, Fig. 13)

LOCATION: Lat. 53° 36.5′–40′ Long. 127° 03′–12′ (93E/11E)
Astride and east of Kasalka Creek on the south side of Tahtsa Reach, 3 to 4 miles south of Huckleberry Mountain.

CLAIMS: REA 1 to 90, TL 1 to 80.

ACCESS: Road and boat, 70 miles from Houston.

OWNER: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: About 270 samples were collected for a silt and soil geochemical survey.

REFERENCE: Assessment Report No. 2258.

Troitsa Lake

FAB (No. 404, Fig. 13)

LOCATION: Lat. 53° 32′ Long. 127° 14′ (93E/11E)
Between elevations of 3,800 and 5,500 feet on the south side of Troitsa Lake and west of Coles Creek.

CLAIMS: FAB 1 to 11, 33 to 40.

ACCESS: Sixty-six miles by helicopter from Houston.

OPERATOR: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, lead, zinc.

WORK DONE: A geochemical survey on all claims (407 samples) and geological mapping on the south group (FAB 33 to 40). A. Gambardella, supervisor.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 141; Assessment Reports Nos. 1670 and 2003.

DESCRIPTION: Pyrite, sphalerite, galena, and minor chalcopyrite occur as fracture-fillings in feldspar porphyry and greywacke and in fragmental and massive andesites.

OVP, MK (No. 405, Fig. 13)

LOCATION: Lat. 53° 29′–33′ Long. 127° 18′–23′ (93E/11W)
On the south side of the west end of Troitsa Lake, between 3,000 and 6,000 feet elevation.

CLAIMS: OVP 1 to 36, MK 1 to 60.

ACCESS: By float plane or helicopter from Burns Lake or Smithers, a distance of 75 miles.

OPERATOR: ASTON RESOURCES LIMITED, 534, 789 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: An 8,000- by 3,000-foot grid was cut over the central portion of the OVP claims. This was followed by a detailed rock geochemistry survey, covering 49,500 line-feet, a detailed geological survey, and an electromagnetic survey. An airborne magnetic and electromagnetic survey, covering about 30 square miles, was completed over the claims and surrounding area. D. A. Davidson and R. Woolverton were in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 112; 1967, p. 113; 1968, p. 141; Assessment Report No. 2026.

DESCRIPTION: Chalcopyrite, pyrite, and molybdenite occur in a north-northwesterly trending structural zone that is occupied by a complex swarm of mainly porphyritic dykes. The zone cuts intrusive rocks and altered volcanic rocks.

SKEENA MOUNTAINS

BABINE RANGE

Hazelton

SILVER STANDARD MINE (No. 906, Fig. 13)

LOCATION: Lat. 55° 19′ Long. 127° 37.5′ (93M/5E)
Five and one-half miles north of Hazelton on Mount Glen, at 1,500 feet elevation.

CLAIMS: Eight Crown-granted claims under lease.

Access: By road from Hazelton.

Owner: Silver Standard Mines Limited.

Operator: NORTHWESTERN MIDLAND DEVELOPMENT CO. LTD., P.O. Box 1329, Prince George; mine address, P.O. Box 130, Hazelton; J. L. Bryck, president and manager.

Metals: Gold, silver, lead, zinc, cadmium (*see* Table 12 for production).

Work Done: Three men were employed underground driving 85 feet of subdrift on No. 10 vein. Six diamond-drill holes totalling 210 feet were drilled. One thousand and fifty tons of ore was mined, 166 tons of waste was picked out at the mill, and 884 tons of ore was milled to produce 100 tons of lead concentrate and 12 tons of zinc concentrate. There is still 15 tons of zinc concentrate on hand at the mill awaiting shipment. Two men were employed in the mill.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 111.

SUNRISE (No. 904, Fig. 13)

Location: Lat. 55° 21′ Long. 127° 29′ (93M/6W)

At the head of Sunrise Creek in Silver Cup Basin on the north side of Nine Mile Mountain, 1 mile east of the Silver Cup. The old portal is at 4,940 feet elevation and the veins outcrop at 5,120 feet elevation.

Claims: The ALPHA 1 to 30, VAN 1 to 6, and six Crown-granted claims (NOONDAY, HIDDEN TREASURE, ETHEL, SUNSET, SUNRISE, and ETHEL Fraction) cover ground formerly known as the SUNRISE and LEAD KING.

Access: Thirteen miles northeast by road from Hazelton; all the upper part of the road is traversed only by four-wheel-drive vehicles or tractor.

Owner: SUNRISE SILVER MINES LTD., 425, 718 Granville Street, Vancouver 2.

Metals: Silver, lead, zinc, antimony.

Work Done: From June until November additional camp facilities were built. Road work on the last 2 miles consisted of drilling and blasting narrow rock sections to the camp. One-half mile of new road was built from camp to the mill-site and farther uphill to the mineral showings. A crew of four to seven men was working and operating D-4, HD-5, and D-6 tractors. Stripping of overburden and additional trenching uncovered a previously unknown vein. One J. I. Case-350 loader was used for gravelling the road. A compressor was brought to the camp and set up with 2-inch pipe-lines underground for vein crosscutting. A drill crew of four men drilled 10 diamond-drill holes totalling 2,800 feet. It was reported that sulphides were found in each hole. Late in the season several tons of selected ore was bagged and readied for shipment. All work during the summer was under the supervision of K. J. Christie, consulting engineer.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 111.

Smithers

TETRA (MORICETOWN SILVER) (No. 452, Fig. 13)

Location: Lat. 55° 02′ Long. 127° 17.5′ (93M/3W)

The property is centred on Causqua Creek, 1 mile upstream from the Bulkley River.

Claims: TETRA, BULKLEY, TITAN, HOPE, HBG, HARRY, 88 in all.

Access: Four miles by road northeast of Moricetown bridge over Bulkley River.

Owner: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

Metals: Silver, lead, zinc.

Work Done: The surface workings were mapped and eight BQ holes were diamond drilled to a total depth of 1,808 feet. J. H. Hachey was in charge.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 124–126.

CRONIN MINE (No. 901, Fig. 13)

Location: Lat. 54° 55.3′ Long. 126° 48.5′ (93L/15W)

On the east slope of Mount Cronin.

Claims: SUNRISE No. 7 Crown-granted mineral claim and seven claims held under option.

Access: Thirty miles by road from Smithers.

Owner: New Cronin Babine Mines Limited.

Operator: KINDRAT MINES LTD., P.O. Box 1057, Smithers; Paul Kindrat, owner and manager.

Metals: Gold, silver, lead, zinc, cadmium (*see* Table 12 for production).

Work Done: The mine was reopened on August 15th and closed for the winter on November 4th. The No. 1 adit was reopened and sampled, 300 tons of ore from the surface pit and old dumps was milled, the concentrates were shipped to Trail. Camp and mill buildings were repaired.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 89.

ASCOT (No. 443, Fig. 13)

Location: Lat. 54° 47′ Long. 126° 44′ (93L/15E)

Dome-McKendrick basin, between elevations of 4,000 and 4,500 feet.

Claims: One hundred and seventy-one claims, including ASCOT 15 to 24, 30, 32, 34, 36, 38, 53 to 69, 71, 73 to 86, 91 to 106, 111 to 125, ASCOT No. 1 Fraction, HEM 1 to 70, AJS 1 to 10.

Access: By helicopter from Smithers, a distance of 18 miles.

Owner: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

Metals: Lead, zinc.

Work Done: Two miles of road was constructed in the northeast corner of the claim group and some detailed geological mapping was done. An airborne magnetometer and electromagnetic survey was conducted over the claims as were ground magnetometer and electromagnetic surveys. Soil samples were collected and three drill-holes totalling 1,000 feet were completed. An average crew of eight men spent three months on the property.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 121; Asssessment Reports Nos. 1702A, 1702B, 1702C, 2139, 2140, and 2141, *B.C. Dept. of Mines*, Map 69-1.

ATNA RANGE

FOG (No. 428, Fig. 13)

Location: Lat. 55° 54′ Long. 127° 30′ (93M/14W)

Atna Range, 3 miles southwest of Shedin Peak; elevations range from 4,500 to 6,500 feet.

Claims: FOG 1 to 39.

Access: By helicopter from Smithers, 78 miles southeast.

Owner: SICINTINE MINES LIMITED, 301, 550 Burrard Street, Vancouver 1.

Metals: Molybdenum, copper.

Work Done: Three men spent three weeks on the property trenching and blasting. M. Cloutier was in charge of work.

Reference: *B.C. Dept. of Mines,* Map 69-1.

Description: Molybdenite and chalcopyrite occur in quartz veinlets and as disseminations in a granitic stock intruding Bowser sediments.

ICE (No. 450, Fig. 13)

Location: Lat. 55° 50′ Long. 127° 20′ (93M/14W)
East slope of the Atna Range on a tributary of the Shelagyote River, between elevations of 3,500 and 5,500 feet.

Claims: ICE 1 to 55.

Access: By helicopter from Smithers.

Owner: SICINTINE MINES LIMITED, 303, 550 Burrard Street, Vancouver 1.

Metals: Molybdenum, copper.

Work Done: A sampling grid was laid out over the ICE 34 to 55 claims and soil samples for geochemical analysis were collected by three men who spent two weeks on the property.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 117; Assessment Report No. 2070.

Description: Molybdenite and chalcopyrite occur in hairline fractures in a quartz diorite intrusive body.

COB, ICE, JAN, MAD (No. 427, Fig. 13)

Location: Lat. 55° 58′ Long. 127° 24′ (93M/14W)
Atna Range, west of Sicintine Lake, between elevations of 3,500 and 6,000 feet.

Claims: One hundred and twenty claims, including COB, ICE, JAN, MAD, CM, ATNA, and SIC claims.

Access: By helicopter or float plane from Smithers, a distance of 90 miles.

Owners: Sicintine Mines Limited and Canadian Superior Exploration Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Metal: Molybdenum.

Work Done: Six men spent one month on the property drilling two diamond-drill holes totalling 1,970 feet. B. Kahlert, project supervisor.

References: *Minister of Mines, B.C.,* Ann. Repts., 1967, pp. 85, 86; 1968, pp. 116, 117.

SICINTINE RANGE

SHEL (No. 908, Fig. 13)

Location: Lat. 55° 56.5′–58.5′ Long. 127° 01′–05′ (93M/14E)
Approximately 3½ miles south-southeast of Motase Lake at 5,500 feet elevation.

Claims: SHEL 1 to 67.

Access: By helicopter or fixed-wing plane, 90 miles north from Smithers.

Owner: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: Geological and geochemical surveys were made on the claims. About 365 soil samples were collected and analysed. Six AQ holes, total length 1,355 feet, were diamond drilled. D. L. Cooke, in charge.

REFERENCE: Assessment Report No. 2084.

DESCRIPTION: Chalcopyrite, molybdenite, and pyrite occur in sericitized and kaolinized quartz monzonite.

CARIBOO HEART RANGE

FRED, BOBO, MARG (NORTHSTAR) (No. 406, Fig. 13)

LOCATION: Lat. 56° 03′ Long. 126° 15.5′ (94D/1W)
In the Cariboo Heart Range, approximately 25 miles north of the north end of Takla Lake, from 4,000 to 5,500 feet in elevation.

CLAIMS: FRED, BOBO, MARG, and others, 126 in all.

ACCESS: By truck and cat roads from the north end of Takla Lake or by float plane.

OPERATOR: NORTHSTAR COPPER MINES LTD., 1214 Eastview Road, North Vancouver.

METAL: Copper.

WORK DONE: Thirteen diamond-drill holes totalling 4,074 feet.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 86; Assessment Reports Nos. 833 and 1084.

OMINECA MOUNTAINS

SWANNELL RANGES

Chukachida Lake

HARMON (No. 413, Fig. 13)

LOCATION: Lat. 57° 33′ Long. 127° 12′ (94E/11E)
Straddling Hiamadam Creek, 7 miles west-southwest of Chukachida Lake, at approximate elevation of 4,700 feet.

CLAIMS: HARMON 1 to 36.

ACCESS: By fixed-wing aircraft, 200 miles from Smithers.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, One Bentall Centre, 505 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: A reconnaissance induced polarization and resistivity survey of 4.2 line-miles was conducted over the northern half of the claims. R. W. Stevenson was in charge.

REFERENCES: Assessment Reports Nos. 1872 and 1981.

DESCRIPTION: Disseminations of chalcopyrite and pyrite occur in andesite.

Toodoggone Lake

XENOS (No. 491, Fig. 13)

LOCATION: Lat. 57° 20.5′ Long. 126° 57′ (94E/7W)
Five miles south of Toodoggone Lake, at 5,500 feet elevation.

CLAIMS: XENOS 1 to 14.

ACCESS: Float plane to Toodoggone Lake and thence by helicopter.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report No. 1984.

CHAPPELLE (No. 492, Fig. 13)

LOCATION: Lat. 57° 17′ Long. 127° 06.5′ (94E/6E)
At 5,500 feet elevation, 2½ miles east of head of Pau Creek, 10 miles southwest of Toodoggone Lake.

CLAIMS: CHAPPELLE 1 to 6.

ACCESS: By float plane to Thutade Lake and thence by helicopter.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report No. 1959.

Thutade Lake

PILLAR (No. 923, Fig. 13)

LOCATION: Lat. 57° 15′ Long. 126° 54′ (94E/2W)
Approximately 4 miles southwest of The Pillar or 12 miles due north of Thutade Lake.

CLAIMS: Approximately 80 PILLAR claims.

ACCESS: By fixed-wing aircraft from Smithers to Thutade Lake, a distance of about 165 miles; thence by helicopter.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

WORK DONE: A geochemical rock-chip and soil sample survey.

REFERENCES: Assessment Reports Nos. 1861 and 1906.

PINE (No. 410, Fig. 13)

LOCATION: Lat. 57° 12′–15′ Long. 126° 38′–44′ (94E/2E)
On Finlay River, 14 miles northeast of Thutade Lake, at elevations of 3,400 to 4,200 feet.

CLAIMS: PINE 1 to 134.

ACCESS: By float plane from Smithers to Pine Lake, approximately 175 miles.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: A geological survey and a geochemical survey comprising 1,607 soil samples were made. Three trenches totalling 84 feet in length were made and one AX hole was diamond drilled to a depth of 81 feet.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 149; Assessment Reports Nos. 1846, 1886, 1983, and 2035.

DESCRIPTION: Chalcopyrite and pyrite occur disseminated in andesite and monzonite which display quartz-sericite and epidote alteration.

ATTYCELLEY (No. 493, Fig. 13)

LOCATION: Lat. 57° 05.5′ Long. 126° 43′ (94E/2E)
At 5,600 feet elevation, one-half mile southwest of Attycelley Creek, 6½ miles east-northeast of the north end of Thutade Lake.

CLAIMS: ATTYCELLEY 1 to 6.

ACCESS: By float plane to Thutade Lake and thence by helicopter.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report No. 1956.

KEMESS (No. 412, Fig. 13)

LOCATION: Lat. 57° 02.5′–04.5′ Long. 126° 42′–47′ (94E/2E, 2W)
Five miles east of the north end of Thutade Lake, at 4,500 to 6,500 feet elevation.

CLAIMS: KEMESS 1 to 100.

ACCESS: By fixed-wing aircraft, 165 miles from Smithers.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, One Bentall Centre, 730, 505 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: One trench, 17 feet in length, was dug and five AX diamond-drill holes totalling 418 feet were drilled. R. W. Stevenson was in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 149; Assessment Report No. 1705.

DESCRIPTION: Chalcopyrite and pyrite are disseminated in siliceous and sericitic andesite of the Takla Group. The andesite is intruded by Omineca diorite, porphyritic granitic rocks, and basalt dykes.

MCCONNELL RANGE

MARMOT, THORNE (No. 418, Fig. 13)

LOCATION: Lat. 56° 45.5′ Long. 126° 34′ (94D/15E)
On Menard, Moosevale, and Johanson Creeks, from 3,000 to 6,700 feet elevation.

CLAIMS: The MARMOT, THORNE, PT, AW, MR, LL, IW, JH, and DS claims, 742 in all.

ACCESS: By air, 242 miles from Prince George to the property airstrip.

OWNERS: New Wellington Mines Limited and Texada Mines Ltd.

OPERATOR: TEXADA MINES LTD., P.O. Box 10, Gillies Bay.

METALS: Copper, silver, molybdenum.

WORK DONE: The surface workings were surveyed and a topographic map prepared. A geological survey and a geochemical survey comprising 2,066 samples were conducted on the MARMOT 1 to 144 claims. About 100,000 square feet of bedrock was stripped by bulldozer and 5 miles of road was constructed. A total of 783 feet was diamond drilled in five AWL holes. The work was supervised by J. Dove.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 82; 1967, p. 89; 1968, p. 119; Assessment Report No. 991.

DESCRIPTION: Chalcocite with minor chalcopyrite and molybdenite occur in shear zones in altered basic volcanics of the Takla Group.

Wrede Creek

RED (No. 920, Fig. 13)

LOCATION: Lat. 56° 44′ Long. 126° 19′ (94D/9W)
At the headwaters of Wrede Creek, 3½ miles southwest of Fleet Peak, at 6,000 feet elevation.

CLAIMS: RED 1 to 33.

ACCESS: By air (helicopter or fixed wing), 140 miles north from Smithers.

OWNER: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

Work Done: The RED 1 to 22 claims were mapped geologically, some fill-in geochemical sampling was done, and six holes, total length 1,044 feet, were diamond drilled. D. L. Cooke, in charge.

Reference: Assessment Report No. 1941.

Description: Chalcopyrite and pyrite occur as a porphyry-type deposit in quartz diorite and granodiorite.

Osilinka River

BEVELEY (No. 919, Fig. 13)

Location: Lat. 56° 09.5′ Long. 125° 03.5′ (94C/3E)
Two miles northwest of the confluence of Wasi Creek and Osilinka River, at 5,000 feet elevation.

Claims: BEVELEY, DONNA, ROBIN, SILVER, GROUSE, RIDGE, BALSAM, PINE, SPRUCE, and WILLOW, 67 in all.

Access: By road, 200 miles from Fort St. James.

Owner: DONNA MINES LTD., 642 Clark Drive, Vancouver 6.

Metals: Silver, lead.

Work Done: An adit was driven 900 feet, the underground workings were mapped, and three holes totalling 500 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Repts., 1950, p. 101; 1951, p. 118; 1952, pp. 98–101; 1967, p. 120; 1968, p. 149; *Geol. Surv., Canada*, Mem. 274, p. 228; Assessment Report No. 1080.

Description: *See* Minister of Mines Annual Report for 1952, p. 101.

Kwanika Creek

HOUSTON (No. 911, Fig. 13)

Location: Lat. 55° 32.5′ Long. 125° 21.5′ (93N/11W)
On Fisher Creek, 1½ miles northwest of the confluence of Kwanika and West Kwanika Creeks. The showings are immediately south of the former Bralorne Takla mercury mine.

Claims: HOUSTON 1 to 48 (formerly the BRON property).

Access: By road, 170 miles from Fort St. James.

Owner: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.

Metal: Mercury.

Work Done: The property was topographically and geologically mapped and an electromagnetic survey of 10½ line-miles was made. About 1,500 soil samples were taken and analysed by a mercury detector and approximately 2,320 small test-pits were dug. E. Bronlund, in charge.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 148; Assessment Report No. 1755.

Description: Cinnabar occurs as fracture-fillings and replacements in limestone.

BOOM, FRANKIE (No. 910, Fig. 13)

Location: Lat. 55° 28′–32.5′ Long. 125° 18′–21′ (93N/6W, 11W)
On Kwanika Creek, from 3 to 8 miles north of its mouth at the east end of Tsayta Lake.

Claims: BOOM, FRANKIE, BUD, CU, HG, KS, JAM, CHO, T GEE, MG, OVP, TX, and BH, 129 in all.

Access: By road, 49 miles from Manson Creek via the Silver Creek road.

OWNER: HOGAN MINES LTD., 811, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Three holes, total length 831 feet, were diamond drilled. D. Sawyer, in charge.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 119.

GAV, SLOPE (No. 407, Fig. 13)

LOCATION: Lat. 55° 43′ Long. 125° 15′ (93N/11E)

Eleven miles west of Germansen Lake, at 5,000 to 6,000 feet elevation.

CLAIMS: GAV 1 to 9, SLOPE 1 and 2, CHEM 1 to 6, CIRQUE 1 to 6.

OPERATOR: NORTHSTAR EXPLORATIONS LTD., 1214 Eastview Road, North Vancouver.

METAL: Copper.

WORK DONE: Geological report and sampling by T. Kikuchi.

Nation Lakes

HEATH (No. 403, Fig. 13)

LOCATION: Lat. 55° 16′ Long. 125° 09′ (93N/6E)

On the western slope of Mount Nation, between elevations of 3,000 and 3,500 feet.

CLAIMS: HEATH 1 to 11.

ACCESS: By float plane or helicopter from Fort St. James or by boat from the east end of Chuchi Lake.

OWNER: Colin Campbell, Sorrento.

OPERATOR: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: Geological and geochemical surveys of all claims.

REFERENCE: Assessment Report No. 1965.

DESCRIPTION: Chalcopyrite and malachite occur in fractures cutting diorite of the Hogem batholith. Mineralization has been observed over an area of 1 square mile.

NS, NSZ, MIKE (No. 909, Fig. 13)

LOCATION: Lat. 55° 15′ Long. 125° 05′ (93N/3E, 6E)

The claims are scattered in several groups from the middle of the north shore of Tchentlo Lake northwestward to the western slopes of Mount Nation.

CLAIMS: NS 1 to 47, NSZ 1 to 48, MIKE 1 to 20, BW 1 to 24, and others, 138 in all.

ACCESS: By aircraft, 60 miles northwest from Fort St. James.

OWNERS: Marc Explorations Ltd. and Hogan Mines Ltd.

OPERATOR: MARC EXPLORATIONS LTD., 1475 Fifth Avenue, Prince George.

METAL: Copper.

WORK DONE: Approximately 310 rock-chip samples were taken for analysis from 72 claims.

HI (No. 420, Fig. 13)

Location: Lat. 55° 12.5′ Long. 125° 06.5′ (93N/3E)
On north side of Tchentlo Lake.

Claims: HI 1 to 30.

Access: By fixed-wing aircraft from Fort St. James, 63 miles to the southeast or by road approximately 60 miles from Fort St. James to the east end of Chuchi Lake and thence about 32 miles by boat up Chuchi and Tchentlo Lakes.

Owner: W. R. BACON, 102, 1111 West Georgia Street, Vancouver 5 (held in trust for N.B.C. Syndicate).

Metals: Copper, molybdenum.

Work Done: Five line-miles each of line-cutting, geochemical, magnetometer, and electromagnetic surveys and a geological survey, all on 10 claims; W. R. Bacon, in charge.

Reference: Assessment Report No. 1947.

BAL (No. 421, Fig. 13)

Location: Lat. 55° 12.5′ Long. 125° 05′ (93N/3E)
On the north side of Tchentlo Lake.

Claims: BAL 1 to 16, PJ 1 to 21, TC 1 to 10, A 1 to 5.

Access: By fixed-wing aircraft, 63 miles from Fort St. James or 90 miles by road and boat from Fort St. James via Chuchi and Tchentlo Lakes.

Owner: TCHENTLO LAKE MINES LTD., 201, 1595 Fifth Avenue, Prince George.

Metals: Copper, molybdenum.

Work Done: Ten miles of line-cutting and a geochemical survey (230 samples) on BAL 1 to 4 and TJ 1 and 2 claims, and 28 trenches totalling 300 feet in length; C. Campbell, supervisor.

References: Assessment Reports Nos. 1947 and 2010.

Description: Copper and molybdenum mineralization occurs in fractures and in small quartz veins in diorite.

FAR (No. 112, Fig. 13)

Location: Lat. 55° 10′ Long. 124° 46′ (93N/2W)
Two miles south of the west end of Chuchi Lake.

Claims: FAR 1 to 20.

Access: By pontoon-equipped aircraft from Fort St. James.

Owner: W. R. BACON, 102, 1111 West Georgia Street, Vancouver 5, for the N.B.C. Syndicate.

Work Done: A magnetometer survey of the FAR 1 to 10 claims was made.

Reference: Assessment Report No. 1994.

Description: Silt samples contain relatively high copper values; no bedrock is known to outcrop on the claims.

TAN (No. 402, Fig. 13)

Location: Lat. 55° 09′ Long. 124° 42′ (93N/2E)
West side of Jean Marie Creek, 1 mile south of Chuchi Lake, at an elevation of 3,500 to 5,000 feet.

Claims: TAN, JUDY, ALEX, BARB, GREG, SK, RT, ISA, RAJ, KIM, 120 in all.

ACCESS: By float-equipped plane from Fort St. James to either Chuchi Lake or Alexander Lake, a distance of about 65 miles.

OPERATOR: WEST COAST MINING & EXPLORATION, 205, 122 East 14th Street, North Vancouver.

METAL: Copper.

WORK DONE: A topographic map at a scale of 1 inch equals 1,000 feet was prepared; on the ALEX, BARB, JUDY, and GREG claims 106 line-miles each of electromagnetic and magnetometer surveys were run and 5,000 soil samples were collected and analysed; the work was supervised by W. G. Botel.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 119; Assessment Reports Nos. 1056 and 2007.

WIT, WAG (No. 481, Fig. 13)

LOCATION: Lat. 55° 13′ Long. 124° 26′ (93N/1W)
Two miles north of the east end of Chuchi Lake.

CLAIMS: WIT, WAG claims, 52 in all.

ACCESS: By road and boat from Fort St. James, a distance of 53 miles.

OWNER: T. Taylor.

OPERATOR: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METALS: Silver, lead, zinc.

WORK DONE: Five men spent one month on the property under the direction of N. B. Vollo, exploration manager. One hole was drilled to a depth of 500 feet.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1965, p. 108; 1967, p. 118; 1968, p. 147; Assessment Report No. 1660.

HOGEM RANGES

Ominicetla Creek

JESS, HOLLY (No. 429, Fig. 13)

LOCATION: Lat. 56° 02′ Long. 126° 18′ (94D/1W)
On the west side of Kaza Lake, between elevations of 4,000 and 5,000 feet.

CLAIMS: Forty-two claims, including the JESS 1 to 26 and HOLLY 1 to 16 claims.

ACCESS: By float plane from Smithers, 90 miles southwest.

OWNER: BAYLAND MINES LTD., 519, 1030 West Georgia Street, Vancouver 5.

WORK DONE: Work consisted of line-cutting and a soil geochemical survey of the entire claim group. Four men spent one month on the property. R. Wolfe supervised work.

REFERENCES: *Geol. Surv., Canada*, Map 962A; Assessment Report No. 1954.

DESCRIPTION: The claims are underlain by Jurassic intermediate volcanic rocks containing trace amounts of pyrite and chalcopyrite.

FIRE (No. 921, Fig. 13)

LOCATION: Lat. 55° 58.7′ Long. 126° 21′ (93M/16W)
On the east side of Lion Creek, 4 miles south-southwest of Kaza Lake, at 3,600 feet elevation.

CLAIMS: FIRE 1 to 43, BURN 1 to 20.

ACCESS: By air, 90 miles from Smithers or by 20 miles of tractor-trail from Bulkley House.

OWNER: KAZA COPPER LIMITED, 1214 Eastview Road, North Vancouver.

Metals: Copper, silver.

Work Done: Approximately 10 miles of road was constructed southward from Kaza Lake and five holes totalling 664 feet were diamond drilled. R. M. Tait, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, pp. 88, 89; 1968, p. 118; Assessment Report No. 1191.

Description: *See* Minister of Mines and Petroleum Resources Annual Report for 1967, pp. 88, 89.

Trembleur Lake

DIANE (No. 408, Fig. 13)

Location: Lat. 54° 55.5′ Long. 125° 34′ (93K/13E)
Four miles southeast of Tsitsutl Mountain, on the west side of Tildesley Creek, at approximately 5,500 feet elevation.

Claims: DIANE 1 to 16.

Access: By air, 65 miles from Fort St. James.

Owner: TERRA NOVA EXPLORATIONS LTD., 12, 425 Howe Street, Vancouver 1.

Work Done: Ten line-miles each of magnetic and electromagnetic surveys were made and 660 samples were taken for geochemical analysis; E. D. Dodson, in charge.

FINLAY RANGES

Bower Creek

PINE (No. 419, Fig. 13)

Location: Lat. 57° 26′ Long. 126° 12′ (94E/8E)
Five miles southwest of Mount Bower, at approximately 4,800 feet elevation.

Claims: PINE 1 to 10.

Access: By float-equipped aeroplane, 180 miles from Mackenzie.

Owner: P. J. Weishaupt.

Operator: CAN-FER MINES LIMITED, 100 Adelaide Street West, Toronto 1, Ont.

Metals: Copper, lead, zinc.

Work Done: The surface workings were mapped and 13 trenches totalling 130 feet in length were made. P. J. Weishaupt was in charge.

Description: Chalcopyrite, minor tetrahedrite, galena, and sphalerite occur in silicified calcareous rocks of Lower Cambrian age.

Ingenika River

FERGUSON (No. 453, Fig. 13)

Location: Lat. 56° 41.5′ Long. 125° 10.5′ (94C/11E)
Between Delkluz Lake and Ingenika River, at an elevation of 2,900 feet.

Claims: FERGUSON, TROUT LAKE, BLUE BELLE, MUIR, and others totalling 32, all Crown-granted.

Access: By float plane from Smithers or Mackenzie, a distance of 150 miles.

Owner: Ingenika Mines Ltd.

Operator: DORITA SILVER MINES LTD., 808, 602 West Hastings Street, Vancouver 2.

Metals: Silver, lead, zinc.

Work Done: The surface and underground workings were mapped and a survey was made of the claims. Twenty-one holes totalling 1,803 feet were diamond drilled. H. B. Gilleland was in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1926, pp. 155–157; 1928, pp. 182–185; 1956, p. 30; 1957, p. 13; *Geol. Surv., Canada*, Mem. 274, pp. 204–208.

NECHAKO PLATEAU

Smithers

COLE (No. 917, Fig. 13)

Location: Lat. 54° 56′ Long. 126° 27′ (93L/16W)
Three miles due east of Tanglechain Lake, 30 miles northeast of Smithers.

Claims: COLE 1 to 32.

Access: By road, 35 miles from Smithers; thence 5 miles by helicopter.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: Ninety-three samples collected for a reconnaissance geochemical survey.

Babine Lake

CAVZ (No. 430, Fig. 13)

By N. C. Carter

Location: Lat. 55° 25′ Long. 126° 20′ (93M/8W)
On Trail Peak, 13 miles northeast of Babine village. Elevations range from 4,000 to 5,300 feet.

Claims: CAVZ 1 to 70, CAVZ Fractions 1 to 4.

Access: By helicopter from Smithers, a distance of 70 miles.

Owner: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

Metal: Copper.

Work Done: One mile of road was constructed from the end of the fire access road leading to Trail Peak and 10 trenches were made totalling 11,810 feet. The geology of the trenches was mapped and some soil sampling was done. Ten holes totalling 2,000 feet were drilled. A crew of six men spent two months on the property under the supervision of A. J. Schmidt, geologist.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 135, 136; Assessment Reports Nos. 1672A, 1672B, 1672C, and 1672D.

Description:

The CAVZ claims include Trail Peak, an isolated topographic high south of the Bait Range. Trail Peak, which rises some 2,000 feet above an area of gentle relief north of Babine Lake, owes its existence to the fact that it is underlain by a fairly resistant siliceous sedimentary sequence which is cut by a variety of intrusive rocks.

The greater part of the area shown on Figure 19 is underlain by a dark-grey to black cherty siltstone which is intensely fractured and iron stained due to the presence of disseminated pyrite. Near Trail Peak the rock has a conchoidal fracture and consists essentially of quartz, feldspar, carbonate, and clay minerals. Interbedded with the siltstone on the west slope of Trail Peak is a light-grey crystal lithic tuff in which 2- to 4-millimetre angular crystal and andesite rock fragments are set in a glassy matrix. Below this unit on the west slope is a light-grey sandstone unit, the age relationships of which are not clear.

The thinly bedded shaly siltstone and mudstone sequence bordering the area is apparently younger than the rocks described, showing some sign of onlap near the

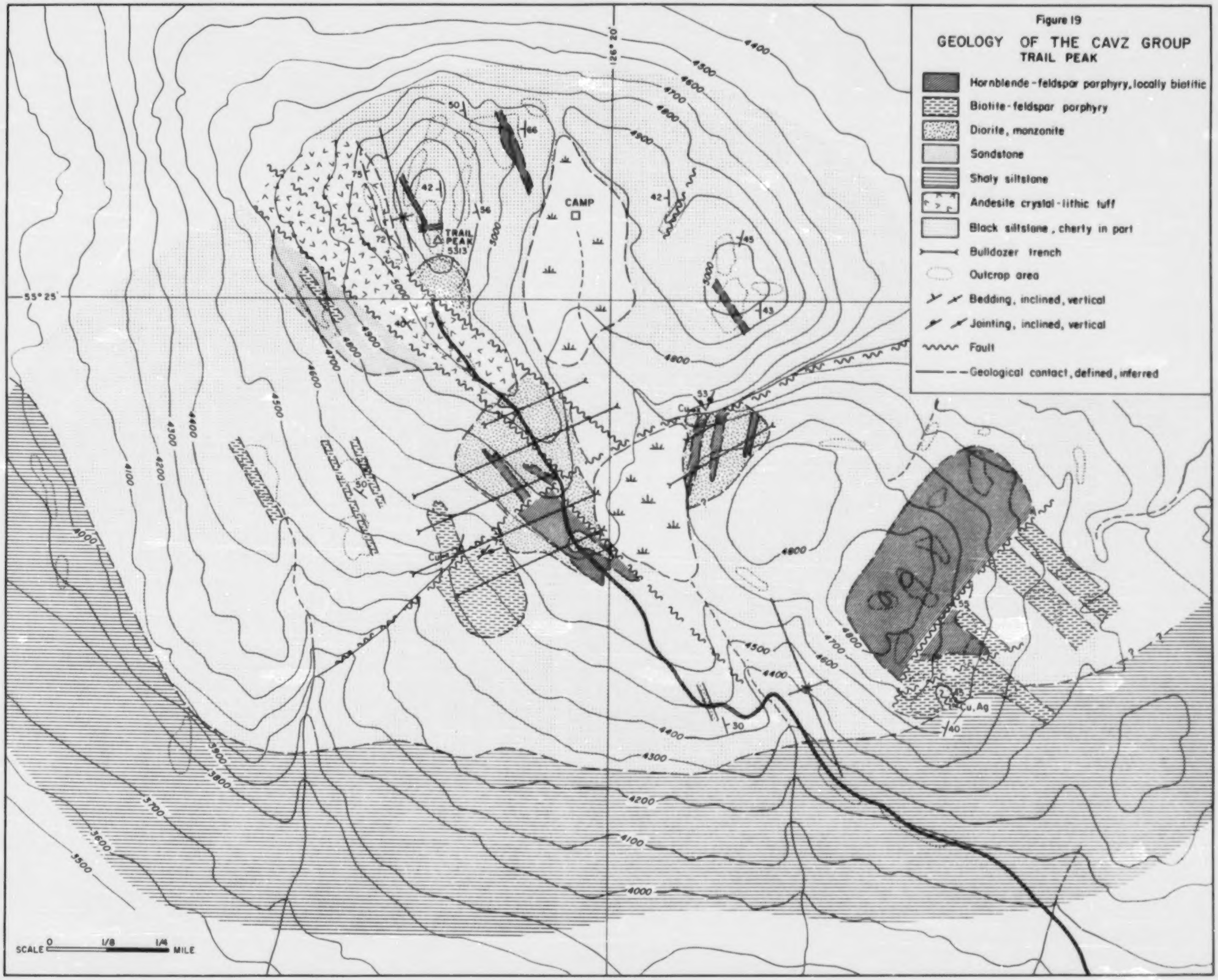


Figure 19

GEOLOGY OF THE CAVZ GROUP
TRAIL PEAK

▨ Hornblende-feldspar porphyry, locally biotitic
▤ Biotite-feldspar porphyry
▒ Diorite, monzonite
░ Sandstone
☰ Shaly siltstone
▧ Andesite crystal-lithic tuff
☐ Black siltstone, cherty in part
Bulldozer trench
Outcrop area
Bedding, inclined, vertical
Jointing, inclined, vertical
Fault
Geological contact, defined, inferred
126° 20'
55° 25'
TRAIL PEAK
5313
CAMP
Cu
Cu, Ag
5000
4900
4800
4700
4600
4500
4400
4300
4200
4100
4000
3900
3800
3700
3600
3500
50
66
42
56
75
72
40
45
43
53
55
30
SCALE 0 1/8 1/4 MILE

southern margin of the map-area. These rocks are also less indurated than the cherty siltstones. At one time this sequence may have covered much of the area, but it has been stripped away by erosion.

The cherty siltstone unit has been intruded by three varieties of intrusive rocks. Intrusive activity on the south side of Trail Peak has caused selective biotite hornfelsing of black siltstone in the vicinity of the survey monument.

The earliest intrusive rocks are medium-grained diorites and granodiorites which occur in small stock-like masses 1,500 feet or so in diameter in the central part of the map-area. An unaltered variety, on the south side of Trail Peak, has a hypidiomorphic granular texture and consists of the following constituents: Euhedral plagioclase (An_{38-46}), 57 per cent; hornblende, 13 per cent; reddish-brown biotite, 7 per cent; interstitial perthite potash feldspar, 7 per cent; anhedral quartz, 5 per cent; and chlorite, opaque minerals, etc., 11 per cent.

Cutting the diorites and granodiorites in addition to the sedimentary rocks are northwest-striking dykes and irregular masses of biotite-feldspar porphyry, which are most abundant in the western trench area. These porphyries are typical of the Babine Lake area and are of quartz-diorite composition. Typically, the rock is medium to dark grey with phenocrysts making up 25 per cent of the rock by volume. These include 1- to 2-millimetre euhedral zoned plagioclase (An_{25-35}) and 1-millimetre books and plates of fresh biotite which are set in a fine-grained matrix of quartz, feldspar, and biotite. Secondary biotite is present as an aggregate of fine flakes obliterating original hornblende and as fine flakes in the matrix. The porphyry is relatively fresh, with only minor sericite-carbonate alteration of feldspar and incipient chloritization of biotite. A typical specimen from the west trench area consists of plagioclase, 46 per cent; quartz, 23 per cent; biotite, 23 per cent; chlorite, 6 per cent; apatite, 1 per cent; and sphene, 1 per cent.

Hornblende feldspar porphyries are closely related to the biotite feldspar porphyries. These occur as narrow northwest-striking dykes or sills on the north slope of Trail Peak, as larger dyke-like masses in the west trench area, and as a large mass capping the hill southeast of the trench area. All varieties display a trachytic texture in which phenocrysts of plagioclase and hornblende are aligned in subparallel fashion as are the fine-grained feldspar laths which make up the matrix. Crude columnar jointing noted in the large area of hornblende feldspar porphyry southeast of the trenches suggests that some phases may be partly of extrusive origin.

The sedimentary rocks of the Trail Peak area are contained in a northwest-trending synform. Northeast and northwest faults dominate the structure of the area and were no doubt instrumental in localizing intrusive activity near the axis of the fold structure. Later post-intrusive movement along these faults has contributed to the complex form of the intrusive bodies.

Copper mineralization was observed in close proximity to the major northeast fault through the central part of the area. In the creek north of the east trenches at an elevation of 4,600 feet, fracture spaced 2 to 6 inches apart in hornblende feldspar porphyry contain pyrite and chalcopyrite with quartz and tourmaline. One-quarter to one-half-inch-wide quartz veins contain chalcopyrite and tourmaline needles and are rimmed by an alteration envelope in which plagioclase is altered to potash feldspar, hornblende to actinolite, and abundant quartz has been introduced.

In the western trench area, chalcopyrite is mainly associated with biotite feldspar porphyry in which it occurs with pyrite as disseminations on fracture planes and in one-quarter-inch-wide quartz veinlets which also contain magnetite. Malachite staining is common. In the same area, tourmaline is abundant in the rocks near the northeast fault zone, occurring in fractures and veinlets and as irregular clots in brecciated hornblende feldspar porphyries and diorites.

Southeast of the trenches, a 2-inch-wide quartz vein, containing galena and sphalerite, occurs in a northwest striking shear zone in shaly siltstone.

BETH (No. 471, Fig. 13)

Location: Lat. 55° 20′ Long. 126° 27′ (93M/8W)
Near Tahlo Lake, 2 miles north of Morrison Lake.

Claims: BETH 1 to 64, BETH 1 to 25 Fractions.

Access: From Smithers by helicopter.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metal: Copper.

Work Done: Four men spent two months on the claims. Soil samples were collected for geochemical analysis and an electromagnetic survey was carried out. A geological map was prepared and magnetic and induced polarization surveys were carried out.

Reference: Assessment Report No. 1975.

Description: Jurassic volcanic and sedimentary rocks are intruded by diorite.

ALPHA (No. 470, Fig. 13)

Location: Lat. 55° 17′ Long. 126° 22′ (93M/8W)
At the north end of Morrison Lake, between elevations of 2,500 and 3,500 feet.

Claims: Fifty-two claims, including the ALPHA IV and ALPHA claims.

Access: By float plane from Smithers, a distance of 47 miles.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Work Done: Four men spent one month collecting geochemical soil samples and conducting an electromagnetic survey. Magnetic and induced polarization surveys were also run.

Reference: Assessment Report No. 2038.

Description: The claims are underlain principally by northwesterly striking Jurassic volcanic and sedimentary rocks.

SPARK, JOY (No. 457, Fig. 13)

Location: Lat. 55° 14′–17′ Long. 126° 18′–25′ (93M/1W, 8W)
On the northeast side of Morrison Lake.

Claims: SPARK 1 to 56, JOY 1 to 60, AL 1 and 2.

Owner: DAVID MINERALS LTD., 306, 540 Burrard Street, Vancouver 1.

Work Done: An airborne magnetic and electromagnetic survey of 38 line-miles or about 10 square miles.

Reference: Assessment Report No. 2103.

DA (No. 469, Fig. 13)

Location: Lat. 55° 18′ Long. 126° 13′ (93M/8E)
East of Nakinilerak Lake, between elevations of 3,500 and 4,000 feet.

Claims: Seventy-seven claims, including the DA 1 to 34, 37, 38, 40, 55, 57 to 60, 71 to 78; WENDY 1, 3, 5, 7, and 9; NAK 1 to 23.

Access: By aircraft from Smithers, a distance of 50 miles.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metal: Copper.

Work Done: Three men spent one month on the property conducting a magnetometer survey and mapping the geology of the central part of the property.

References: *Minister of Mines, B.C.,* Ann. Repts., 1964, p. 53; 1966, pp. 95–97; 1967, p. 103; 1968, p. 131; Assessment Report No. 1198.

KOFIT (No. 432, Fig. 13)

Location: Lat. 55° 11′ Long. 126° 17′ (93M/1W)
On west slope of Hearne Hill, between elevations of 3,000 and 4,500 feet, 1 mile east of the south end of Morrison Lake.

Claims: KOFIT 1 to 188.

Access: By 45 miles of road from Smithers to Smithers Landing on Babine Lake and thence 15 miles by boat to the head of Hatchery Arm, or by float plane or helicopter from Smithers to Morrison Lake.

Owner: Tro-Buttle Exploration Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: An average crew of 13 men spent three months on the property conducting magnetic, electromagnetic, and induced polarization surveys and collecting soil samples. The property was geologically mapped and 47 2-inch-size percussion holes were drilled near the base of Hearne Hill. Drilling totalled 11,000 feet. B. Kahlert, project supervisor.

References: *Minister of Mines, B.C.,* Ann. Repts., 1966, pp. 99–101; 1967, pp. 105, 106; 1968, p. 134; Assessment Reports Nos. 1102, 1854, and 2047.

BABE (No. 472, Fig. 13)

Location: Lat. 55° 15′ Long. 126° 30′ (93M/7E)
East of the northwest arm of Babine Lake, 7 miles south of Babine village.

Claims: BABE, FRISBEE, LUK, THORN, TUT claims and fractions, 237 in all.

Access: By aircraft from Smithers.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metal: Copper.

Work Done: A geological map of the property was completed and soil samples were collected for analysis. Geophysical work consisted of airborne and ground magnetic and electromagnetic surveys and an induced polarization survey. Seven miles of road was constructed and eight holes totalling 1,200 feet were drilled.

References: Assessment Reports Nos. 2150 and 2151.

Description: Biotite feldspar porphyries intrude Jurassic volcanic and sedimentary rocks.

WOLF (No. 431, Fig. 13)

Location: Lat. 55° 13′ Long. 126° 23′ (93M/1W)
West side of Morrison Lake, 4 miles north of its south end; elevations range from lake level at 2,400 feet to 3,300 feet.

Claims: WOLF 1 to 38.

Access: Forty-five miles by float plane, northeast from Smithers.

Owner: Tro-Buttle Exploration Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Geological mapping and checking induced polarization anomalies. B. Kahlert, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 99–102; 1967, p. 107; 1968, p. 136; Assessment Reports Nos. 761, 1240, 1808, and 1854.

MICK, SKIDOO, SWAMP (No. 926, Fig. 13)

Location: Lat. 55° 07′ Long. 126° 25′ (93M/1W)
On Old Fort Mountain, northwest of Old Fort on Babine Lake.

Claims: MICK 19 to 21, SKIDOO 1 and 2, SWAMP 1 to 12, 15 to 37.

Access: By helicopter.

Owner: GRANDORA EXPLORATIONS LTD., 511, 850 West Hastings Street, Vancouver 1.

Work Done: Seven line-miles of magnetometer survey on the SKIDOO claims and 7 line-miles of EM 16 survey on the MICK 19 and 20 claims.

NEWMAN (No. 903, Fig. 13)

Location: Lat. 55° 00′ Long. 126° 14′ (93L/16E, 93M/1E)
At the north end of Newman Peninsula on Babine Lake.

Claims: NEWMAN, LINDA, LAD, and other groups for a total of 181 claims.

Access: From Smithers by road to Smithers Landing on Babine Lake, a distance of 45 miles; thence 15 miles by boat to the property.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metal: Copper.

Work Done: Nine holes totalling 2,732 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Repts., 1965, pp. 99–102; 1966, p. 99; 1967, p. 105; 1968, p. 134.

Description: Chalcopyrite, bornite, and chalcocite occur as disseminations in matrix and as fracture-fillings in feldspar porphyry and biotite feldspar porphyry (*see Minister of Mines, B.C.*, Ann. Rept., 1965, pp. 99–102, for detailed description).

GRANISLE MINE (No. 463, Fig. 13)

Location: Lat. 54° 56.5′ Long. 126° 09.5′ (93L/16E)
On McDonald (Copper) Island, 10 miles north of Topley Landing.

Claims: Thirty-one Crown-granted and 15 recorded claims on McDonald Island and 44 recorded claims on Sterrett Island and one adjoining island to the south.

Access: By ferry from the townsite of Granisle, on the west side of Babine Lake, 7 miles by gravel road from Topley Landing.

Owner: GRANISLE COPPER LIMITED, 1111 West Georgia Street, Vancouver 5; mine office, Granisle; Boyd Hardwicke, mine manager.

Metal: Copper (*see* Table 12 for production).

Work Done: Ore mined and milled, 2,329,857 tons; waste removed, 1,143,014 tons. There were no significant changes in methods or schedules. One P & H shovel was added to the pit equipment. Thirty horsepower in small motors was added to the mill and crusher load. Two 40-horsepower ball-mill overflow pumps were removed from service.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 97–99; 1967, pp. 104, 105; 1968, pp. 132, 133.

BADGE (No. 433, Fig. 13)

Location: Lat. 54° 51′ Long. 126° 18′ (93L/16W)
West of Granisle townsite, at 3,000 feet elevation.

Claims: BADGE 1 to 14.

Access: By old logging-roads and trail from Granisle townsite, a distance of between 2 and 7 miles.

Owner: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

Work Done: Soil geochemistry and a magnetometer survey were carried out over the entire claim group. D. H. James, in charge of work.

Description: The area is largely devoid of outcrop. Some basic volcanics are present.

TACHI (No. 434, Fig. 13)

By N. C. Carter

Location: Lat. 54° 45′ Long. 126° 11′ (93L/9E, 16E)
Four miles south of Topley Landing, on Tachek Creek, at an elevation of 3,000 feet.

Claims: One hundred and eighty, including the TACHI 1 to 100, 117 to 138, 140 to 146, 148 to 150, TACHEK 101 to 110, MET 1 to 32, and TACHI 1 to 7 Fractions.

Access: By road from Topley, a distance of 20 miles.

Owners: R. Keefe and R. Thornton.

Operator: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Geological mapping was carried out over the entire claim group, and magnetic, electromagnetic, and geochemical surveys were completed over the central claims. Four and one-half miles of road was constructed within the claim block. Drilling included 3,326 feet of diamond drilling in six holes, and 26 percussion holes totalling 5,655 feet were also put down. Four company employees spent nine months on the property, and six contractor employees worked five months.

References: *Minister of Mines, B.C.*, Ann. Repts., 1965, pp. 90–93; 1968, p. 133.

Description:

The area encompassed by the claims is one of moderate relief, largely covered with glacial deposits of sand and gravel. Rock exposures are limited to deeply incised creeks, the flanks of isolated ridges, and to Shoulder Mountain, near the southern limits of the area shown on Figure 20.

The oldest rocks exposed are intermediate volcanic rocks, probably of Lower Jurassic age, which strike northward and dip steeply east. These are intruded by Topley granitic rocks which underlie the central part of the claim group. Younger than the granitic rocks is a sequence of volcanic rocks, referred to in earlier litera-

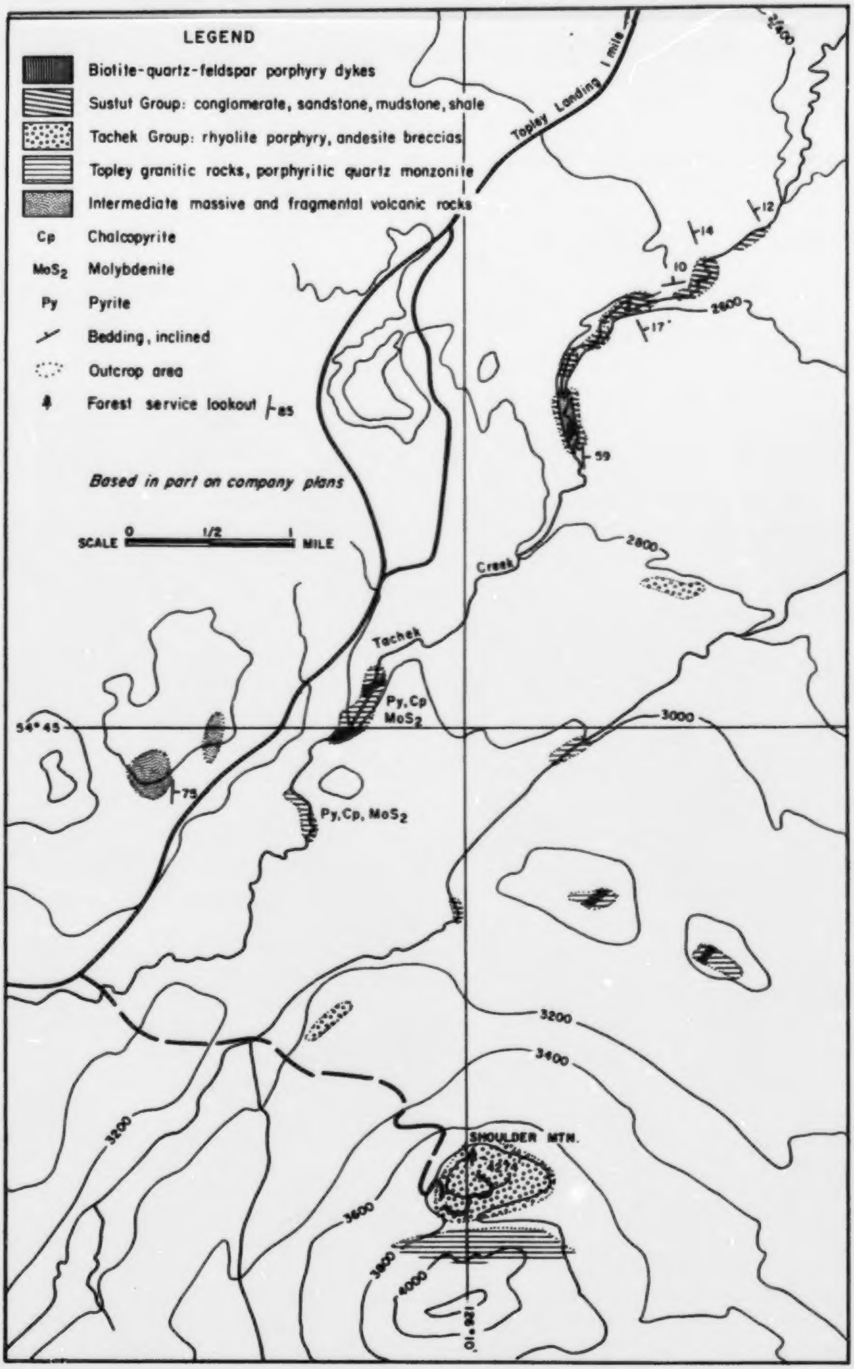

LEGEND
Biotite-quartz-feldspar porphyry dykes
Sustut Group: conglomerate, sandstone, mudstone, shale
Tachek Group: rhyolite porphyry, andesite breccias
Topley granitic rocks, porphyritic quartz monzonite
Intermediate massive and fragmental volcanic rocks
Cp Chalcopyrite
MoS2 Molybdenite
Py Pyrite
Bedding, inclined
Outcrop area
Forest service lookout
85
Based in part on company plans
SCALE 0 1/2 1 MILE
Topley Landing 1 mile
2400
2800
2800
3000
3200
3400
3200
3600
3800
4000
12
14
10
17
59
75
Tachek Creek
Py, Cp MoS2
Py, Cp, MoS2
54°45'
SHOULDER MTN.
4274
126°10'

Figure 20. Tachi group, geology of the Tachi claims.

ture as belonging to the Tachek Group. These are best exposed near the Forest Service lookout on Shoulder Mountain, where they occur as medium-green andesite breccias containing angular fragments of Topley granitic rocks, of several inches in size. Elsewhere in the area shown on Figure 20, rocks assigned to this group consist mainly of buff, fine-grained rhyolite and quartz-latite porphyries, although the age relationships of these rocks are not clear. An outlier of the Upper Cretaceous-Lower Tertiary Sustut Group, comprising a gently dipping sequence of conglomerates, sandstones, and mudstones, unconformably overlies Jurassic volcanic rocks and Topley granites along Tachek Creek in the northeast part of the area on Figure 20.

Biotite-quartz feldspar-porphyry dykes were observed cutting the granitic rocks in the vicinity of the principal mineral showings near 2,900 feet elevation on Tachek Creek. The dykes have irregular, commonly brecciated contacts with the granites and strike predominantly east. Where seen in the creek, they are several feet wide, although drill intersections in the order of 50 feet were encountered. The dyke rock, while lithologically similar to the typical Babine porphyries with which the copper deposits of the region are associated, differs from them in age and by having quartz phenocrysts. Typically, the rock is a crowded porphyry, with phenocrysts making up 50 per cent of the rock by volume, including 2- to 4-millimetre euhedral, zoned, plagioclase crystals, 2-millimetre resorbed quartz phenocrysts, and 1- to 2-millimetre books of fresh biotite, all set in a fine-grained matrix of quartz, feldspar, and secondary shredded biotite. Hornblende phenocrysts, 2 to 4 millimetres in size, are not uncommon, and these are commonly altered to a mixture of chlorite, sericite, and flaky biotite. A typical specimen of porphyry is of quartz-diorite composition and contains the following constituents: Quartz, 35 per cent; plagioclase (An_{28-35}), 45 per cent; biotite, 7 per cent; chlorite and sericite, 10 per cent; and metallic minerals, 3 per cent.

The Topley granitic rocks near the mineral showings range from granodiorite to quartz monzonite in composition. The most common type is a medium-grained holocrystalline light-grey rock with a pinkish cast. In thin-section, unaltered varieties feature hypidiomorphic granular to seriate textures, with 60 per cent of the rock by volume consisting of 1- to 2-millimetre euhedral grains of unzoned plagioclase (An_{28}), 17 per cent of anhedral quartz, 15 per cent of subhedral grains of potash feldspar, 8 per cent interstitial ragged biotite books, and minor apatite and epidote. Alteration products include sericite on feldspars and incipient chloritization of biotite. More altered varieties exhibit 4- to 6-millimetre porphyroblasts of potash feldspar, plus epidote, chlorite, potash feldspar, and magnetite in and marginal to numerous fractures.

Sulphide mineralization, in the form of pyrite, chalcopyrite, and molybdenite, appears to be most widespread marginal to biotite-quartz feldspar-porphyry dykes. In general, molybdenite is restricted to potash feldspar rimmed fractures, while chalcopyrite occurs both in fractures and as disseminations in both the granitic rocks and the porphyries.

Biotite-lamprophyre dykes, 3 feet wide and magnetic, were seen cutting the granitic rocks and are apparently of post-mineral age.

TOPLEY, BABINE, TOTEM (No. 473, Fig. 13)

LOCATION: Lat. 54° 44′–48′ Long. 126° 05′–12′ (93L/9E, 16E)
Three miles south of Topley Landing, between elevations of 2,400 and 3,300 feet.

Claims: TOPLEY, BABINE, TOTEM, three contiguous groups comprising 152 claims.

Access: By road from Topley Landing.

Owner: TRO-BUTTLE EXPLORATION LIMITED, Ninth Floor, 850 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: A topographic base-map of the property was prepared and a sampling grid was blazed. Soil samples for geochemical analysis were collected and geological mapping was carried out. Four men spent approximately four months on the property.

References: Assessment Reports Nos. 2094 and 2095.

Description: The area of the claims is underlain principally by Topley granitic rocks.

DONNA, KAREN (No. 480, Fig. 13)

Location: Lat. 54° 44′ Long. 126° 12′ (93L/9E)
Five miles southwest of Topley Landing.

Claims: DONNA and KAREN claims, comprising 125.

Access: By 18 miles of road from Topley on Highway No. 16.

Owner: WHITESAIL MINES LTD., 306, 540 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: Eight men spent three weeks on the claims under the direction of R. Woolverton, who mapped the geology of the claims. Geophysical work included magnetometer, Radem, and induced polarization surveys, and soil samples were collected for analysis.

Reference: Assessment Report No. 2199.

Description: Chalcopyrite is disseminated locally in Topley granitic rocks.

BAB (No. 435, Fig. 13)

Location: Lat. 54° 43′ Long. 126° 19′ (93L/9W)
North side of Baboon Lake, 10 miles southwest of Topley Landing.

Claims: BAB 1 to 24.

Access: By road from Topley on Highway No. 16, a distance of 20 miles.

Owner: Falconbridge Nickel Mines Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Work Done: Four men spent half a month collecting soil samples and carrying out magnetometer and electromagnetic surveys over the entire claim group. D. Johnson, in charge of work.

Description: The area is devoid of outcrop.

FG (No. 437, Fig. 13)

Location: Lat. 54° 43′ Long. 126° 14′ (93L/9E)
Seven miles south of Topley Landing.

Claims: Eighty-eight FG claims.

Access: By road from Topley, a distance of 20 miles.

Owner: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: Four company employees spent three months soil sampling and conducting a magnetometer survey over the FG 1 to 80 claims. An induced polarization survey involved two contractor employees for two weeks. A topographic map was made of the claims area. R. E. Anderson, in charge of work.

Reference: Assessment Report No. 2050.

Description: Chalcopyrite occurs locally as disseminations and in veins in volcanic rocks and Topley granitic rocks.

RED (No. 436, Fig. 13)

Location: Lat. 54° 43′ Long. 126° 04′ (93L/9E)
Near Babine Lake, 6 miles southeast of Topley Landing.

Claims: RED 1 to 24 claims.

Access: By air from Topley Landing.

Owner: Falconbridge Nickel Mines Limited.

Operator: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Four men spent half a month on the property conducting magnetic and electromagnetic surveys and collecting soil samples. R. Overstall supervised the work.

Description: Chalcopyrite is reported to occur as disseminations in Topley granitic rocks.

CLEO, LANA (No. 479, Fig. 13)

Location: Lat. 54° 37′ Long. 126° 18′ (93L/9W)
West of Topley Landing road at an elevation of 3,600 feet.

Claims: Approximately 150, including the CLEO, LANA, HULL, and JOE claims.

Access: By road from Topley, a distance of 9 miles.

Owner: WHITESAIL MINES LTD., 306, 540 Burrard Street, Vancouver 1.

Work Done: Eight men spent one month on the property. Magnetic, electromagnetic, and induced polarization surveys were run and soil samples were collected for geochemical analysis.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1926, p. A143.

Description: The area of the claims is drift covered. The old Beaver Dam showing referred to in old reports was not found.

SUMMIT (No. 479, Fig. 13)

Location: Lat. 54° 36′ Long. 126° 19′ (93L/9W)
Between Redtop and Tachek Creeks 7 miles due north of Topley.

Claims: SUMMIT 1 to 49.

Access: By road, 8 miles from Topley.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: One hundred and ninety-two samples were collected for a reconnaissance geochemical survey.

LORNE (No. 485, Fig. 13)

Location: Lat. 54° 35′ Long. 125° 27′ (93K/11W)
At southwest corner of Cunningham Lake, 12 miles northwest of the east end of Babine Lake.

Claims: LORNE 1 to 16.

Access: By air, 50 miles from Fort St. James.

Operator: ENDAKO MINES LTD., 1218, 1030 West Georgia Street, Vancouver 5.

Metals: Silver, lead.

Work Done: Geology and topography mapped by E. T. Kimura, 260 soil samples collected for geochemical analysis.

Sutherland River

KID (No. 482, Fig. 13)

Location: Lat. 54° 24′ Long. 124° 52.3′ (93K/7W)
Between elevations of 3,000 and 3,500 feet 12 miles east-southeast of Babine Lake and 18 miles south of Tachie on Stuart Lake.

Claims: KID 1 to 56.

Access: By helicopter from Babine Lake or Stuart Lake.

Owner: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

Metal: Molybdenum.

Work Done: The geology of all the claims was mapped, 27 miles of ground magnetometer and VLF-EM surveys were run over the KID 1 to 12, 25 to 27, 39, 41, 43, and 45 claims, 2,500 feet of trenching was done in overburden with a high-pressure water pump, and 11 miles of road was built.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 136; Assessment Report No. 1866.

Houston

DEL SANTO (No. 478, Fig. 13)

Location: Lat. 54° 39.3′ Long. 126° 42′ (93L/10E)
About 4½ miles north of McQuarrie Lake and 18 miles north of Houston.

Claims: DEL SANTO 1 to 32.

Access: By 10 miles of road from Quick on Highway No. 16.

Operator: FALCONBRIDGE NICKEL MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1 (optioned from M. Chapman).

Metals: Copper, silver, zinc.

Work Done: Picket lines were cut and magnetic and electromagnetic surveys were carried out. A geological map was prepared and four trenches were made. Five men spent two months on the property.

Reference: Assessment Report No. 2238 (line-cutting).

Description: Copper, silver, and zinc mineralization occurs in Hazelton sedimentary rocks.

LUCKY, LADY, PEHU (No. 900, Fig. 13)

Location: Lat. 54° 35′ Long. 126° 31′ (93L/9W, 10E)
Fourteen miles north-northeast of Houston at an altitude of approximately 4,000 feet.

Claims: LUCKY, LADY, PEHU, AN, NO, BLACK MOUNTAIN, BOOT, PUFF, 226 in all.

ACCESS: By road, 6 miles north from Perow on Highway No. 16.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

WORK DONE: Four holes, total length 204 feet, were diamond drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 107; 1968, p. 136; Assessment Reports Nos. 1559 and 1667.

LV (No. 438, Fig. 13)

LOCATION: Lat. 54° 30′ Long. 126° 37′ (93L/7E, 10E)
Between elevations of 3,300 and 4,400 feet 2 miles northwest of Knockholt.

CLAIMS: Two hundred and eight LV claims.

ACCESS: By road from Highway No. 16 at Knockholt, a distance of 5 miles.

OWNER: BUVAL MINES LTD., 812, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE: A topographic map of the area of the claims was prepared and magnetic and geochemical surveys were completed on the LV 1 to 192 claims. Geological mapping and an electromagnetic survey were carried out on the LV 4 and 5 claims. A crew of three men spent four months on the property. Matt Bell, geologist, in charge of work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 102; 1968, p. 138; Assessment Report No. 2145.

ED (No. 499, Fig. 13)

By N. C. Carter

LOCATION: Lat. 54° 26′ Long. 126° 39′ (93L/7E)
On Mount Harry Douglas, 1½ miles north of Houston, at an elevation of 2,500 feet.

CLAIMS: Twenty-nine claims and one fraction including the ED, MIC, RUBE, CASH, STRIKE, WESTGARDE groups.

ACCESS: By road from Houston.

OWNER: Edward Westgarde, *et al.*

OPERATOR: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Copper, silver.

WORK DONE: Six men spent 2½ months on the property. Soil-sampling was carried out and an induced polarization survey was conducted. A geological map was prepared and 1,700 feet of drilling was done in five holes.

DESCRIPTION:

Mount Harry Douglas is underlain by a sequence of fragmental volcanic rocks ranging in composition from rhyolite to basalt.

Copper-silver mineralization, occurring in a northwest-striking, easterly-dipping sequence of rhyolite crystal tuff, volcanic sandstone, and argillaceous sedimentary rocks at an elevation of 3,300 feet, was investigated by trenching and drilling by Molymine Explorations Ltd. in 1967. Similar mineralization was encountered in 1969 during construction of a private logging-road along the 2,600-foot level on the southeast slope of Mount Harry Douglas. Here, a road cut exposes a northwest-striking 3-foot-wide sheared zone in basalt crystal lithic tuff in which chalcopyrite, tetrahedrite, and some bornite occur in fractures and as disseminations.

BARR, LYBDENUM (No. 477, Fig. 13)

LOCATION: Lat. 54° 26' Long. 126° 52' (93L/7W)
Between elevations of 2,400 and 3,700 feet 4 miles west of Barrett.

CLAIMS: One hundred and seventy-three, including the BARR, LYBDENUM, BA, LB, CU, and MAG claims.

ACCESS: By 14 miles of road from Quick, on Highway No. 16.

OWNERS: BARR and LYBDENUM claims owned by W. H. Smith, Telkwa; remainder owned by operator.

OPERATOR: FORTUNE CHANNEL MINES LTD., 500, 890 West Pender Street, Vancouver 1.

METALS: Molybdenum, copper.

WORK DONE: Three men spent one and one-half months on the property soil sampling and conducting a magnetometer survey.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 103; 1968, pp. 137, 138; Assessment Reports Nos. 1139, 2308, and 2309.

DOT, ROD, TON, LUKY (No. 439, Fig. 13)

LOCATION: Lat. 54° 19' Long. 126° 38' (93L/7E)
Between elevations of 2,600 and 2,900 feet at junction of Bob Creek and Buck River.

CLAIMS: DOT 3 to 5, TON 1 to 8, ROD 4 and 6, LUKY 1 to 40, formerly known as GOLD BRICK.

ACCESS: By road from Houston, a distance of 10 miles.

OWNER: Lorne Hansen.

OPERATOR: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METALS: Gold, silver, zinc.

WORK DONE: Three men spent half a month on the property prospecting and sampling. P. G. Curtis, geologist, supervised the work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 138; *Geol. Survey, Canada*, Paper 40-18, p. 17.

DESCRIPTION: Pyrite, sphalerite, and galena occur as disseminations in volcanic rocks.

OWEN LAKE

THE GEOLOGY OF THE OWEN LAKE AREA

By B. N. Church

Introduction

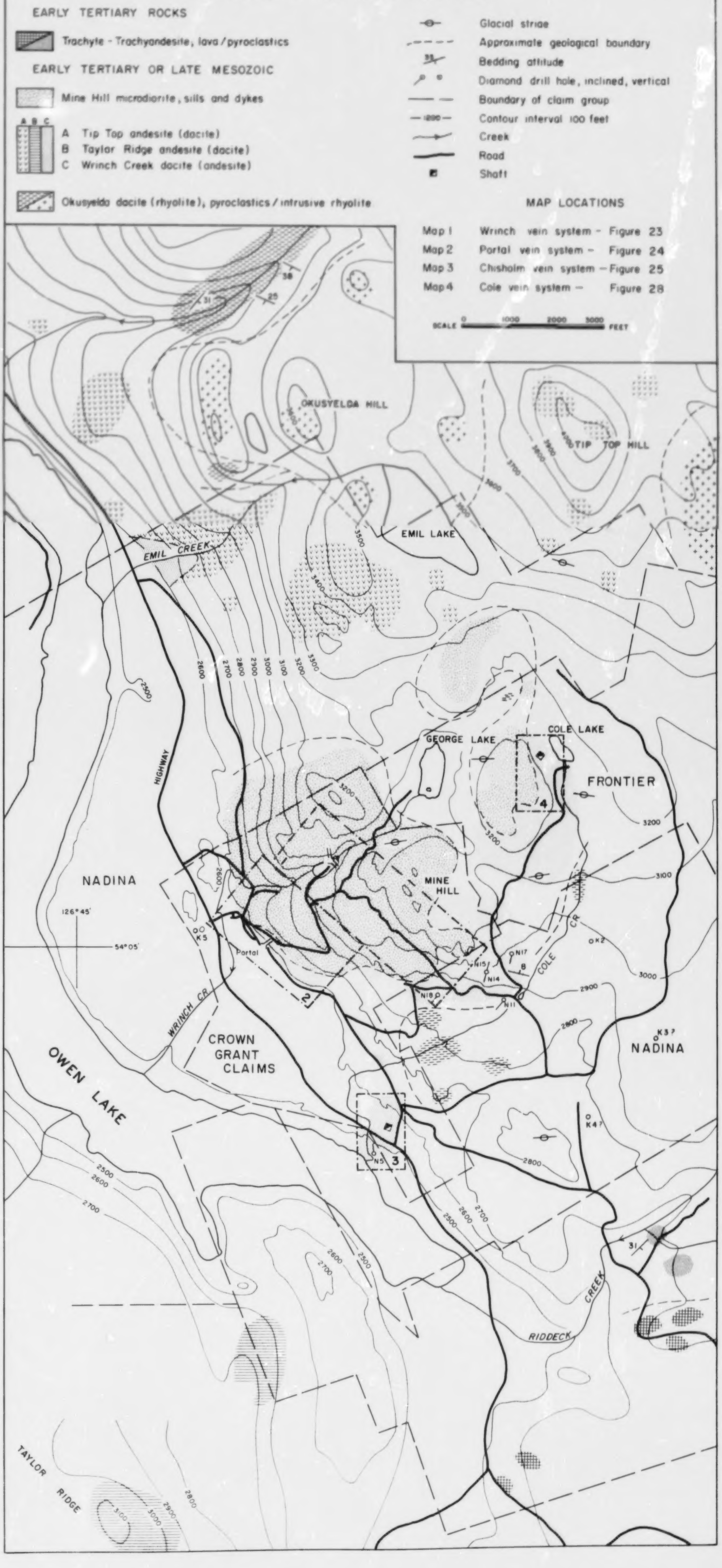
The Owen Lake area has been the scene of prospecting activity since 1912 when vein mineralization was discovered along Wrinch Creek just east of Owen Lake. Nadina Explorations Limited and Frontier Exploration Limited have reactivated the old Silver Queen and Diamond Belle prospects in the area and Nadina now appears to be on the verge of production. This report is intended to amplify the regional geology of the area and update detailed geological information now available on these properties.

Physiography

The Owen Lake map-area is near the west margin of the Nechako plateau on the divide between the Skeena and Fraser River systems (*see* Fig. 21). The topography is typically rolling, with maximum relief of only about 1,800 feet. Slopes

Figure 21

GEOLOGY OF THE OWEN LAKE AREA


EARLY TERTIARY ROCKS
Trachyte - Trachyandesite, lava / pyroclastics
EARLY TERTIARY OR LATE MESOZOIC
Mine Hill microdiorite, sills and dykes
A B C
A Tip Top andesite (dacite)
B Taylor Ridge andesite (dacite)
C Wrinch Creek dacite (andesite)
Okusyelda dacite (rhyolite), pyroclastics / intrusive rhyolite
Glacial striae
Approximate geological boundary
Bedding attitude
Diamond drill hole, inclined, vertical
Boundary of claim group
Contour interval 100 feet
Creek
Road
Shaft
MAP LOCATIONS
Map 1 Wrinch vein system - Figure 23
Map 2 Portal vein system - Figure 24
Map 3 Chisholm vein system - Figure 25
Map 4 Cole vein system - Figure 28
SCALE 0 1000 2000 3000 FEET
OKUSYELDA HILL
TIP TOP HILL
EMIL LAKE
EMIL CREEK
GEORGE LAKE
COLE LAKE
FRONTIER
MINE HILL
NADINA
HIGHWAY
126°45'
54°05'
K5
Portal
WRINCH CR
CROWN GRANT CLAIMS
OWEN LAKE
COLE CR
N17
N15
N14
N18
N11
K2
K3?
K4?
N5
NADINA
RIDDECK CREEK
TAYLOR RIDGE
1
2
3
4

increase gently from Owen Lake, at an elevation of 2,410 feet, to the highest points, Okusyelda Hill and Tip Top Hill, at about 3,600 feet and 4,000 feet respectively near the north boundary.

The area is well forested except for meadows on south-facing slopes at high elevations and immediately around Mine Hill, in the central part, which is almost entirely open grassland even at relatively low elevations.

Bedrock exposure in the region is poor, being less than 10 per cent of the total area. Commonly only the most resistant rocks crop out even on hills and ridges. A blanket of alluvium locally more than 20 feet thick covers the slopes of Mine Hill, and overburden in excess of 100 feet thick was encountered in drill-holes on the large meadow to the southeast.

General Geology

The Owen Lake area is underlain mainly by an " old series " of lava and pyroclastic rocks of either late Mesozoic or early Tertiary age and a small area of " young series " Tertiary volcanic rocks which are probably the local equivalent of the Ootsa Formation (Eocene?). These rocks are cut by stock-like igneous intrusions, sills, and dykes.

Old Series Volcanic Rocks and Intrusions (Late Mesozoic or Early Tertiary)

The composition distribution of the old series volcanic pile is shown on Figure 22. The most common rocks are dacites and dacitic andesites. Basaltic andesite and rhyolite are scarce and no basalt was found. The local names " Okusyelda dacite," " Wrinch Creek dacite," " Taylor Ridge andesite," " Tip Top andesite " are informally applied to the main stratigraphic units of the old series.

The Okusyelda acid volcanic beds and related intrusions are thought to be the oldest rocks in the exposed succession. The main eruptive centres are on Okusyelda Hill and the small knoll immediately east of Tip Top Hill. The intrusive rocks underlying these areas are distinctively light coloured and locally show fluxion texture. The rocks contain about 20 per cent plagioclase phenocrysts and accessory biotite and quartz crystals. These minerals are commonly set in a fine-grained matrix.

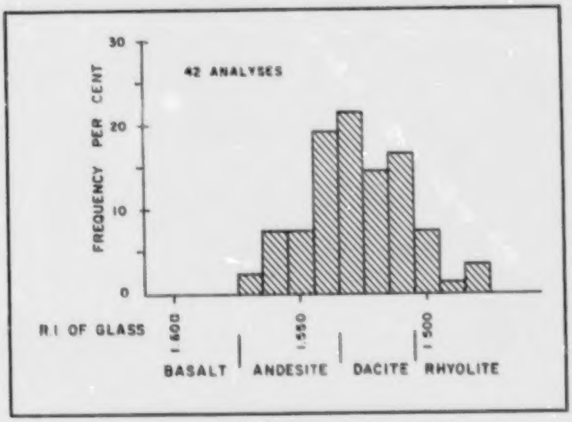


Figure 22. Frequency distribution of volcanic rocks in the Owen Lake area.

Quartz-bearing pyroclastic rocks are exposed in Okusyelda Creek and southeast of Mine Hill along much of the course of Cole Creek. The rocks are characterized by an abundance of white porcelain-like fragments and small corroded quartz crystals displayed in thin-section. The dominant phase exposed in Okusyelda Creek is tuff breccia, with some intercalated accretionary lapilli and thin volcanic sandstone and siltsone beds. These beds dip 25 to 40 degrees to the south.

Rhyolite and rhyodacite pyroclastic rocks exposed along Cole Creek are severely altered, the feldspathic and lithic fragments having undergone marked kaolinization. The rocks are enriched in pyrite and normally carry accessory carbonates. Generally quartz is unaffected by the alteration and the original embayed and corroded outlines of quartz phenocrysts are still visible in thin-section. The attitude of the acid pyroclastics near Cole Creek has been determined from data obtained from diamond-drill holes. The intersections of these drill-holes with the top of the acid pyroclastic unit indicate that the bedding attitude strike is 105 degrees and dip 8 degrees northeast.

The Wrinch Creek volcanic member, which appears to be contemporaneous or slightly younger than Okusyelda rocks, is composed of dacite and andesite volcanic fragmental rocks. This unit is exposed in Wrinch Creek, near Cole Lake, on the southwest side of Mine Hill near the 2,800-foot elevation, in the Chisholm shaft area, and at the mouth of Emil Creek. Typically, the rocks are highly altered and vary in colour from light grey to dark brown, consisting mostly of massive volcanic breccia (*see* Plate VB). In thin-section these rocks consist mainly of a fine-grained mixture of kaolin and quartz, minor carbonate minerals, and disseminated pyrite grains.

The Tip Top andesite, Taylor Ridge andesite, and Mine Hill microdiorite together form the most widespread and important geological units in the area. The rocks are petrographically similar and therefore they are thought to be the same age.

The Tip Top andesite covers much of the northern part of the map-area. The rocks consist of brown porphyritic lavas and pyroclastic beds which clearly overlie the acid volcanic suite at Tip Top Hill and in the Emil Creek area. The rocks are usually distinctive in hand-specimen, being charged with small white feldspar laths 1 or 2 millimetres long and a few large prismatic hornblende crystals measuring as much as 1 centimetre long. In thin-section these rocks are characteristically merocrystalline with subhedral plagioclase, pyroxene, and hornblende phenocrysts suspended in very fine-grained matrix. Modal analysis shows 40 per cent fresh oscillatory zoned plagioclase, 7 per cent combined altered pyroxene and hornblende, accessory biotite and magnetite, and 50 per cent matrix. Close examination shows small quartz grains in the matrix of some of these rocks.

The Taylor Ridge andesite, lying southwest of Owen Lake, is remote from the type area of Tip Top andesite; however, it is believed that these units were once co-extensive throughout the Owen Lake area.

The old series volcanic rocks are intruded by the " Mine Hill microdiorite " at the centre of mineralization on the Nadina and Frontier properties on Mine Hill and in the area between George Lake and Cole Lake. This intrusion is sill-like in form, covering an area of scattered outcrops about 1 mile in diameter. Windows are eroded through the sill in the vicinity of George Lake and in the canyon of Wrinch Creek. The sill appears to be thickest south of Wrinch Creek on Mine Hill where fresh microdiorite feeder dykes have been intercepted in trenches and underground workings on the Nadina property. Much of the microdiorite exposed on Mine Hill is fresh, black, or dark grey, and magnetically sensitive to a tack finder. The rock is generally brittle and charged with small feldspar crystals and a few biotite books. In thin-section the rock is crowded with rectangular plagioclase plates 1

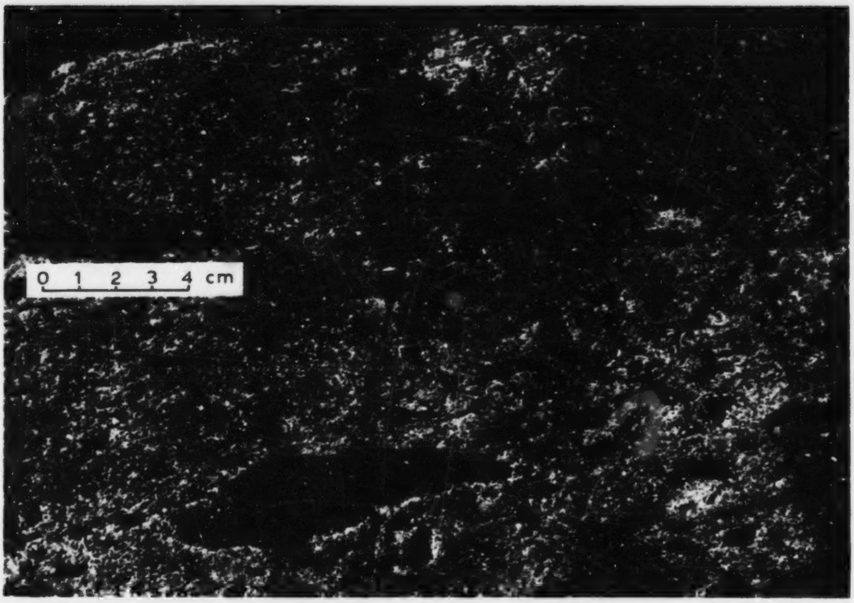


Plate VA.—Rhyodacite ash-flow bed containing a collapsed pumice fragment (fiamme), near the head of Denys Creek, Dominion Basin.

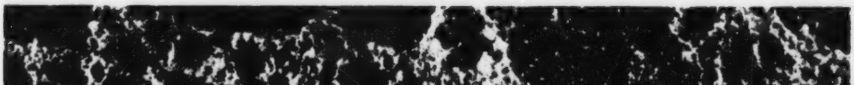


Plate VB.—Owen Lake area, dacitic andesite volcanic breccia near Cole Lake.

to 3 millimetres in diameter, small interstitial pyroxene subhedra, one-half to 1 millimetre in diameter, and a few books of biotite one-half to 4 millimetres across, disseminated magnetite grains, and usually fine-grained groundmass. In some specimens the interstitial areas between feldspars is filled with wedges and angular grains of quartz. Chemical analysis of a fresh sample of microdiorite from Wrinch Creek is similar to Daly's average augite andesite (*see* Table of Chemical Analyses, p. 138). The microdiorite is generally altered along fissures and where it forms the wallrock of veins. The feldspar is usually kaolinized and ferromagnesian constituents are replaced in part by fine-grained carbonates, epidote, and pyrite, the altered rock being characteristically non-magnetic. In a few places very close to veins the rocks are markedly chloritized.

Young Series Volcanic Rocks and Intrusions (Tertiary)

The main exposures of Tertiary (Eocene?) volcanic beds are in the southeast part of the map-area. The rocks consist of fresh trachyte and trachyandesite lavas and pyroclastics. A section of light-grey aquagene tuff about 150 feet thick is exposed in the canyon of the east fork of Riddeck Creek near the east boundary of the map-area (*see* Plate VIA). These beds strike about 045 degrees and dip 30 degrees south. A large area south of Riddeck Creek is underlain by trachyandesite lava. In the few places of good exposure the lava is found to be medium brown or grey, vesicular, with few phenocrysts, and commonly zeolite-bearing.

Beds of similar alkaline volcanic rocks are known to extend to the east and it is certain that the same units once blanketed the central part of the map-area. Pulaskite and trachyte feldspar-porphyry feeder dykes are found throughout the underground workings and surface working on Mine Hill and in the nearby areas.

A few young basalt dykes also occur in the Mine Hill area. These are thought to be related to the plateau basalt lavas (Endako Formation of Miocene ? age) cropping out on the ridge tops and buttes east of the Owen Lake area.

SILVER QUEEN (NADINA) (No. 462, Fig. 13)

By B. N. Church

LOCATION: Lat. 54° 05′ Long. 126° 43.8′ (93L/2W, 2E)
(Portal of Earl adit)

The mine workings are just east of Owen Lake, 27 miles by good all-weather gravel road south of Houston.

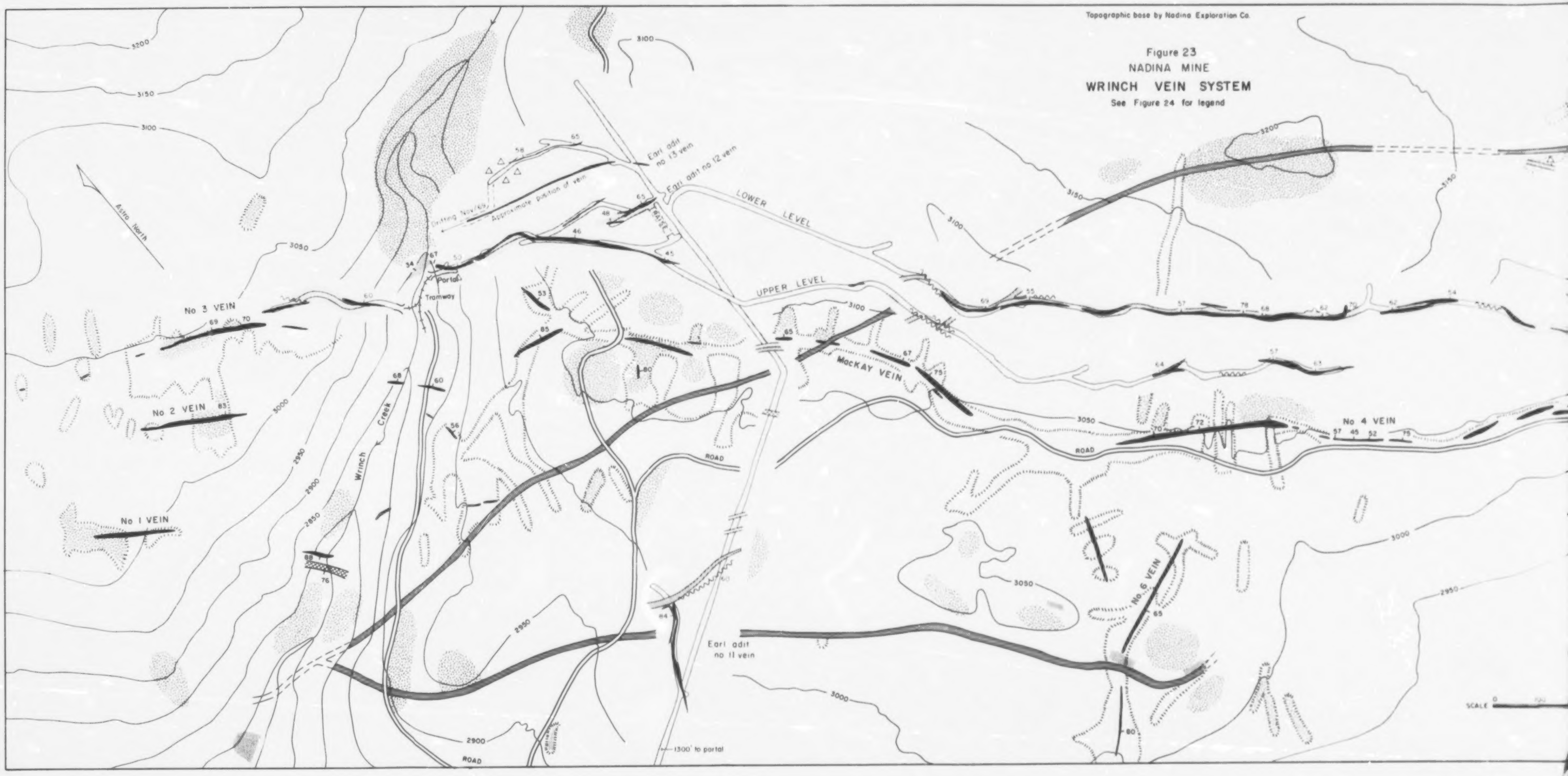
CLAIMS: Seventeen Crown-grant claims; EARL 1 to 3, EARL 1 FRACTION, SILVER QUEEN, SILVER KING, SILVER TIP, TYEE, I.X.L., I.X.L. 3, LUCY, LILI FRACTION, MARY, MARG FRACTION, MAE, MAE 1. Eighty-five claims held by location; NADINA 1 to 4, OWL 1 to 15, OWL 1 FRACTION, ANGUS 1 to 4, CU FRACTION, AG FRACTION, M3 FRACTION, OL 1 to 22, 25, 26, BIG MOOSE 1 to 10, HAWK 1 to 9, T.J. 1 to 3, 5, DOUBLE X 1 to 12.

ACCESS: The mine and east claim block is serviced by the Houston–Francois Lake road. Numerous company roads and farm roads provide excellent access to most parts of the property east of Owen Lake.

OWNERS: The seventeen Crown-granted claims are held under agreement with Canadian Exploration Limited and the eighty-five recorded claims are owned by Nadina Explorations Limited.

OPERATOR: NADINA EXPLORATIONS LIMITED, 1420, 789 West Pender Street, Vancouver 1.

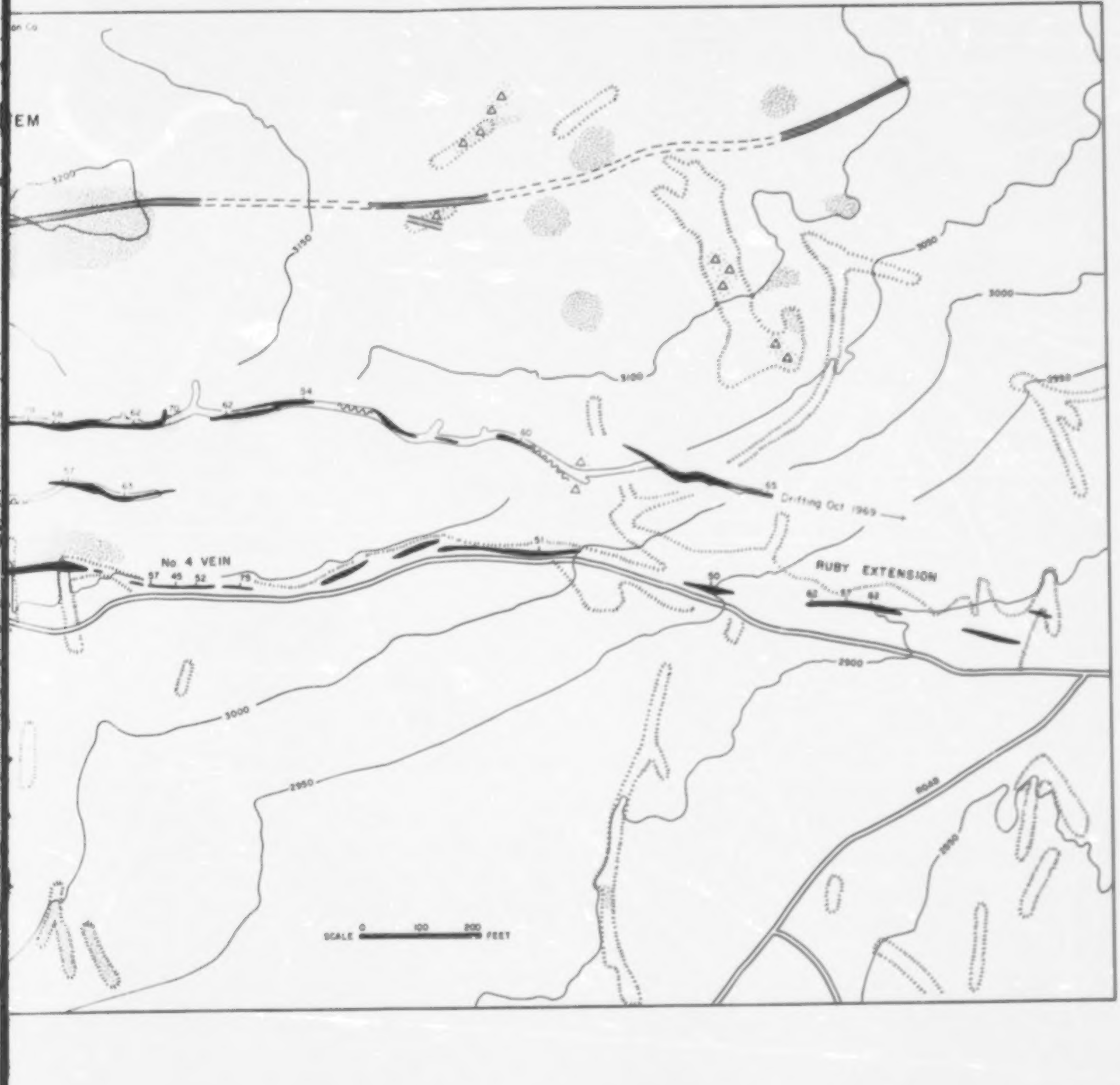
METALS: Gold, silver, copper, zinc, lead, cadmium.



3200
3150
3100
3050
3000
2950
2900
2850
Astro North
No 3 VEIN
69
70
60
No 2 VEIN
85
No 1 VEIN
Wrinch Creek
68
60
56
88
76
34
67
50
Portal
Tramway
58
65
Drifting Nov/69
Approximate position of vein
Earl adit no 13 vein
Earl adit no 12 vein
65
48
46
45
RAISE
LOWER LEVEL
UPPER LEVEL
53
85
80
65
67
75
MacKAY VEIN
ROAD
60
84
Earl adit no 11 vein
1300' to portal
69
55
57
78
68
62
52
54
64
57
63
72
70
No 4 VEIN
57
45
52
75
No. 6 VEIN
65
80
SCALE 0 100

Topographic base by Nadina Exploration Co.

Figure 23
NADINA MINE
WRINCH VEIN SYSTEM
See Figure 24 for legend


on Co
EM
3200
3150
3100
3050
3000
2950
2900
ROAD
No 4 VEIN
57
45
52
79
51
54
62
79
68
60
65
63
50
Drifting Oct 1969
RUBY EXTENSION
62
57
62
SCALE 0 100 200 FEET

Work Done: Geological mapping of the entire property was performed at 1,000 feet to 1 inch and more detailed mapping of the vein system at 100 feet to 1 inch. The property was covered by magnetometer and electromagnetic aerial reconnaissance surveys. A geochemical soil survey was performed on the OL claims, using grid-lines spaced at intervals of 200 feet and sampling at 100-foot spacings along the lines. Diamond drilling included surface work, 31 AQ holes totalling 10,637 feet; and underground work, 20 AQ holes totalling 3,561 feet. About 4,000 feet of drifting was added to existing underground workings. A new compressor building and bunkhouse were installed.

References: *Minister of Mines, B.C.*, Ann. Repts., 1916, p. 160; 1923, pp. 114–116; 1924, pp. 99, 100; 1928, pp. 170, 171; 1929, pp. 171–175; 1965, pp. 81–84; 1966, p. 104; 1967, pp. 108, 109; 1968, p. 139; *Geol. Surv., Canada*, Sum. Rept., 1929, pt. A, pp. 62–89; *Geol. Surv., Canada*, Map 671A, Houston; *Geol. Surv., Canada*, Map 971A, Smithers to Fort St. James.

Description:

Introduction

The early history of this property has been reviewed by Holland, 1965. Briefly, the original discovery and initial work were made by Dr. Wrinch and partners in the period 1912 to 1923. The property was then acquired and investigated by the Federal Mining and Smelting Co., 1923 to 1928; the Owen Lake Mining & Development Co. Limited, 1928 to 1941; and Canadian Exploration Limited 1941 to 1963. Nadina Explorations Limited gained control of the property in 1963 by option of 17 Crown-granted claims from Canadian Exploration Limited. Kennco Explorations, (Western) Limited took an option in 1967 but returned the property to Nadina after a geochemical survey and a brief diamond-drill programme. In March, 1970, Northgate Exploration Ltd. obtained an important interest in Nadina.

The extent of workings and known mineralization on the property as of October, 1969, is shown on Figures 23, 24, and 25. Approximately 4,400 lineal feet of vein mineralization is exposed on surface by extensive trenching on Mine Hill and in the Chisholm shaft area. The underground development on Mine Hill consists of two levels totalling about 10,600 feet of crosscuts and drifts which expose about 4,000 feet of veins. Most of the trenching and more than half of the total underground development is the result of work by Nadina.

The main access to the underground workings on the lower level is from the Earl adit crosscut which extends about 3,000 feet northeast from the portal on the west side of Mine Hill at 2,590 feet elevation. Ten drifts branch from the crosscut with a total length of about 5,100 feet. The upper level consists of two main drifts—a northwest drift about 300 feet long and a southeast drift about 2,100 feet long. These are serviced by portals at 2,880 feet elevation in Wrinch Creek canyon. The southeast drift is connected to the Earl adit crosscut by a three-compartment raise.

The Veins

Twenty-three veins are identified and numbered. These consist of the following: Veins Nos. 1 to 3—the original discovery veins in Wrinch Creek canyon; vein No. 4—located several hundred feet southeast of Wrinch Creek canyon beyond the junction of veins Nos. 1 and 2 (the MacKay vein and " Ruby extension " are considered to be part of No. 4 vein); veins Nos. 6 and 7—located several hundred feet south of Wrinch Creek canyon and west of No. 4 vein; the Earl adit veins Nos. 1 to 13, which are veins intercepted by Earl adit crosscut and numbered con-

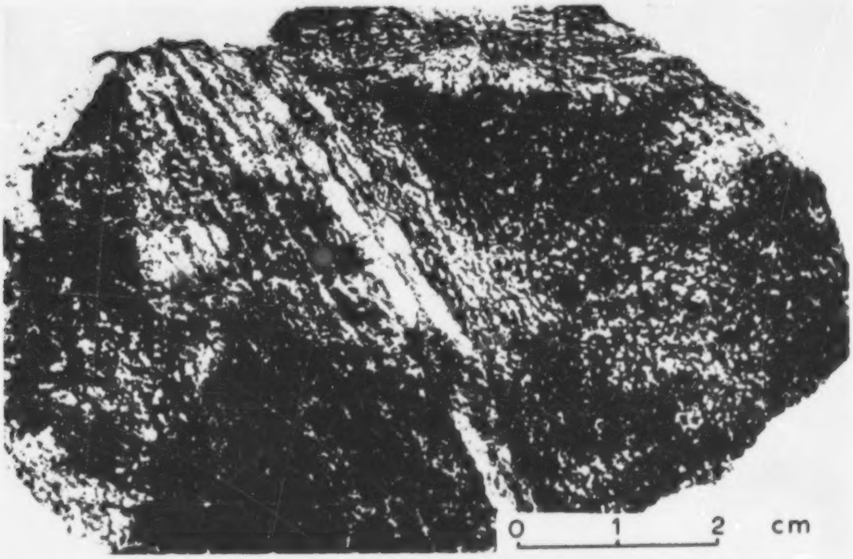


Plate VIA.—Tertiary aquagene tuff from the east fork of Riddeck Creek canyon.

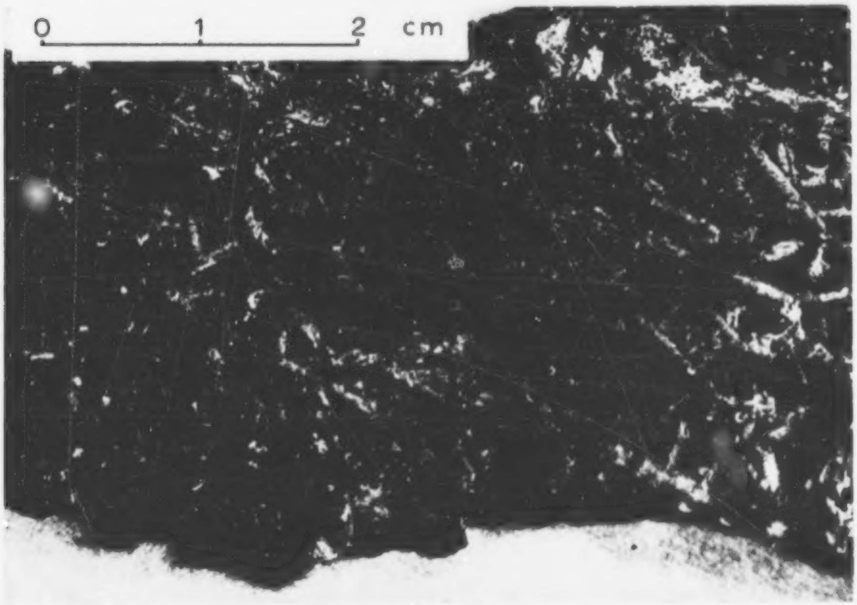


Plate VIB.—Tubular growth of manganese oxide in a vein-cap deposit, vein No. 2 south of Wrinch Creek canyon.

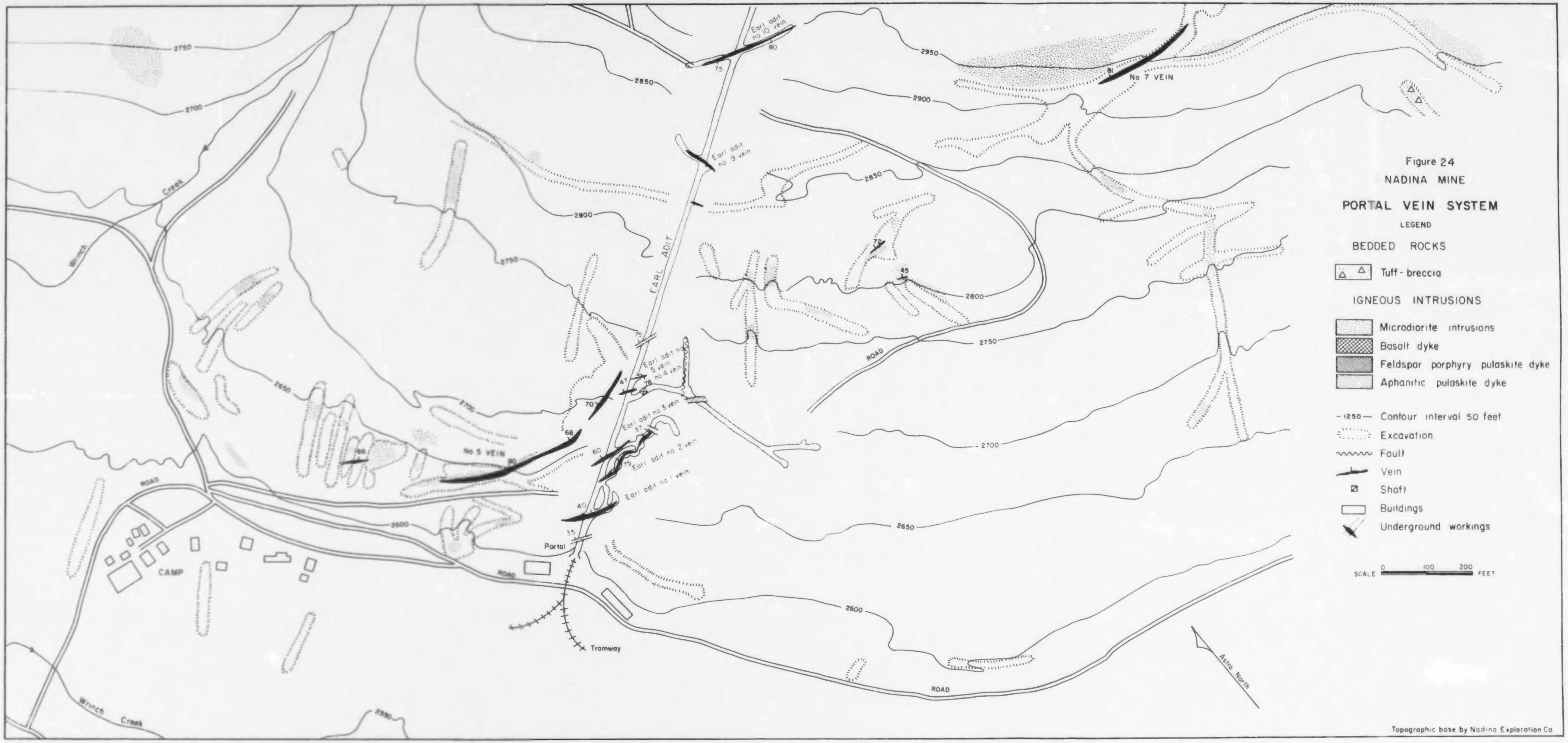


Figure 24
NADINA MINE
PORTAL VEIN SYSTEM

LEGEND
BEDDED ROCKS
△ Tuff-breccia
IGNEOUS INTRUSIONS
Microdiorite intrusions
Basalt dyke
Feldspar porphyry pulaskite dyke
Aphanitic pulaskite dyke
-1250- Contour interval 50 feet
Excavation
Fault
Vein
Shaft
Buildings
Underground workings
SCALE 0 100 200 FEET
Astro North
Topographic base by Nadina Exploration Co.
Earl adit no 10 vein
No 7 VEIN
Earl adit no 9 vein
EARL ADIT
Earl adit no 5 vein
no 4 vein
Earl adit no 3 vein
Earl adit no 2 vein
Earl adit no 1 vein
No 5 VEIN
Portal
Tramway
CAMP
ROAD
Wrinch Creek
2750
2700
2850
2950
2900
2800
2650
2600
2580
75
80
81
72
45
47
78
70
68
60
37
90
40
35

secutively from the portal (three " veins " occurring between Earl adit veins Nos. 5 and 11 are too small to warrant detailed description in this report and are not identified on the plans). Vein No. 5 is located a few hundred feet north of the Earl portal and the Mae Nos. 1 to 3 veins are in the Chisholm shaft area.

Three main groups of veins are currently recognized. These are the " Wrinch vein system," the " Portal vein system," and the " Chisholm vein system."

The Wrinch vein system is the most important and is the site of almost all the current development work (*see* Fig. 23). The system includes veins Nos. 1 to 4, and Earl adit veins Nos. 12 and 13. The average over-all strike of the veins is about 130 degrees. The system can be traced over a length of more than 4,200 feet. Vertical depth from surface exposures of the veins to the Earl adit varies from about 500 to 300 feet, depending on local topography. Most of the veins vary in dip between 50 and 70 degrees northeast, the average dip being 62 degrees on 45 measurements. The veins are generally banded with sphalerite as the predominant sulphide mineral followed by pyrite, chalcopyrite, and then galena. The gangue minerals consist mainly of cherty quartz, carbonate minerals, including rhodochrosite, and some barite.

Vein No. 3 is distinctive with generally a higher chalcopyrite content than the other veins of the system and correspondingly high average copper values (*see* Tabulation of Assays, p. 137). The vein is readily traced and there seems little doubt that Earl adit vein No. 13 is the downward extension of No. 3 to the lower level. In places, pink rhodochrosite is the most important gangue mineral in this vein. An assay of a rhodochrosite slab with pyrite and sphalerite veinlets taken near the face of the north drift on the upper level gives: Gold, 0.03 ounce per ton; silver, 2 ounces per ton; copper, 0.37 per cent; lead, 3.40 per cent; zinc, 3.69 per cent; iron, 10.65 per cent; manganese, 26 per cent; cadmium, 0.02 per cent; arsenic, 0.09 per cent; antimony, 0.05 per cent; bismuth, *nil;* barium, 0.61 per cent.

Vein No. 4 is somewhat discontinuous, being segmented at the northwest and southeast ends into what is known as the " MacKay vein " and " Ruby extension " respectively. Sphalerite and pyrite are the main sulphides; specularite, galena, chalcopyrite, and tennantite are concentrated locally. The ore is generally well banded with seams of grey cherty quartz and some carbonate minerals. Barite occurs locally as randomly oriented plates in vugs and pockets throughout the vein. The Ruby extension contains distinctive red sphalerite (ruby jack) and local concentrations of tennantite.

The average assays for the whole vein show high zinc and fair to good precious metal values (*see* Tabulation of Assays). The Ruby extension has above average gold, silver, and copper content. A sample of coarse sphalerite ore taken 100 feet from the face in the upper level assays: Gold, 0.04 ounce per ton; silver, 2.1 ounces per ton; copper, 0.89 per cent; lead, 0.14 per cent; zinc, 35.93 per cent; iron, 5.56 per cent; manganese, 0.24 per cent; cadmium, 0.24 per cent; arsenic, 0.33 per cent; antimony, 0.10 per cent; bismuth, less than 0.01 per cent; barium, 0.01 per cent. A sample of colloform-banded sphalerite-rich ore taken near the northwest end of the Ruby extension on the lower level assays: Gold, 0.34 ounce per ton; silver, 42.8 ounces per ton; copper, 0.19 per cent; lead, 1.60 per cent; zinc, 28.20 per cent; iron, 5.40 per cent; manganese, 0.40 per cent; cadmium, 0.12 per cent; arsenic, 0.14 per cent; antimony, 0.02 per cent; bismuth, less than 0.01 per cent; barium, 3.24 per cent. Analysis of a vuggy pyrite, red sphalerite, rich ore sample from the Ruby extension taken at the face on the lower level shows: Gold, 0.76 ounce per ton; silver, 21.4 ounces per ton; copper, 0.13 per cent; lead, 7.05 per cent; zinc, 31.50 per cent; iron, 7.58 per cent; manganese, 0.12 per cent; cadmium, 0.17 per cent; arsenic, 0.50 per cent; antimony, 0.02 per cent; bismuth, 0.01 per cent; barium, 4.66 per cent.

Vein No. 2 may be the northwest extension of No. 4 and their downward extension is probably Earl adit vein No. 12; all three veins being relatively poor in chalcopyrite compared to nearby vein No. 3. Vein No. 2 and Earl adit vein No. 12 are similar in having only moderate precious metal values (*see* Tabulation of Assays).

Vein No. 1 is the most westerly vein of the Wrinch system. The copper-lead-zinc values are similar to those of the Ruby extension of vein No. 4; however, precious metal grades are comparatively low (*see* Tabulation of Assays).

The Portal vein system contains some of the most spectacular metal grades to be found on the property. The ore reserve in this system, however, appears to be relatively small at the present stage of mine development. This is due to the position of the veins near the portal of the lower level where backs are generally less than 100 vertical feet from surface (*see* Fig. 24). The system includes vein No. 5 and Earl adit veins Nos. 1 to 5. Like the Wrinch system, the veins generally dip to the northeast; however, they strike more easterly than do the Wrinch veins.

Vein No. 5 is exposed at intervals on surface over a length of 500 feet. It is typically chalcopyrite-rich and carries above-average precious metal values (*see* Tabulation of Assays). A quartz-chalcopyrite sample was assayed with the following results: Gold, 0.28 ounce per ton; silver, 24.2 ounces per ton; copper, 7.19 per cent; lead, 0.17 per cent; zinc, 0.17 per cent; iron, 11 per cent; manganese, 0.34 per cent; cadmium, *nil;* arsenic, *nil;* antimony, *nil;* bismuth, 0.11 per cent; barium, 0.01 per cent.

Earl adit veins Nos. 1 to 5 are not exposed on surface but have been intercepted in underground workings in the area immediately south of vein No. 5. Earl adit veins Nos. 1 to 3 are subparallel and are 90 feet, 180 feet, and 230 feet respectively from the portal in the Earl adit crosscut. Earl adit vein No. 1 is chalcopyrite-rich and similar to vein No. 5, whereas Earl adit vein No. 2 is richer in sphalerite and contains lower precious metal values (*see* Tabulation of Assays); No. 3 is pyritiferous, with generally low metal values.

Earl adit veins Nos. 4 and 5 are approximately 375 feet and 400 feet respectively from the portal. These are narrow and discontinuous and metal grades are low to moderate. The veins do not appear to be related to vein No. 5 which is exposed almost directly above on surface.

Veins Nos. 6 and 7 and Earl adit veins Nos. 9 to 11 are between the Wrinch vein system and the portal vein system.

Nos. 6 and 7 are exposed on the surface a few hundred feet west of the midpoint on vein No. 4 (*see* Figs. 23 and 24). These strike easterly and appear to be interconnected. Sphalerite and pyrite are the most important sulphides, galena and chalcopyrite are accessory, the veins being compositionally similar to vein No. 4 of the Wrinch system.

Earl adit veins Nos. 9 to 11 are intersected in Earl adit crosscut approximately 910 feet, 1,150 feet, and 1,440 feet respectively from the portal. No. 10 strikes about 105 degrees and dips steeply to the south. The vein can be traced for about 200 feet in drifts branching east and west from the main crosscut. Unlike veins Nos. 6 and 7, Earl adit vein No. 10 is chalcopyrite-rich; however, these veins are subparallel and possibly lie on the same curving fracture system.

Earl adit veins Nos. 9 and 11 are unusual because of their northerly trend. No. 9 is a pyrite-sphalerite vein exposed in north and south stub drifts branching

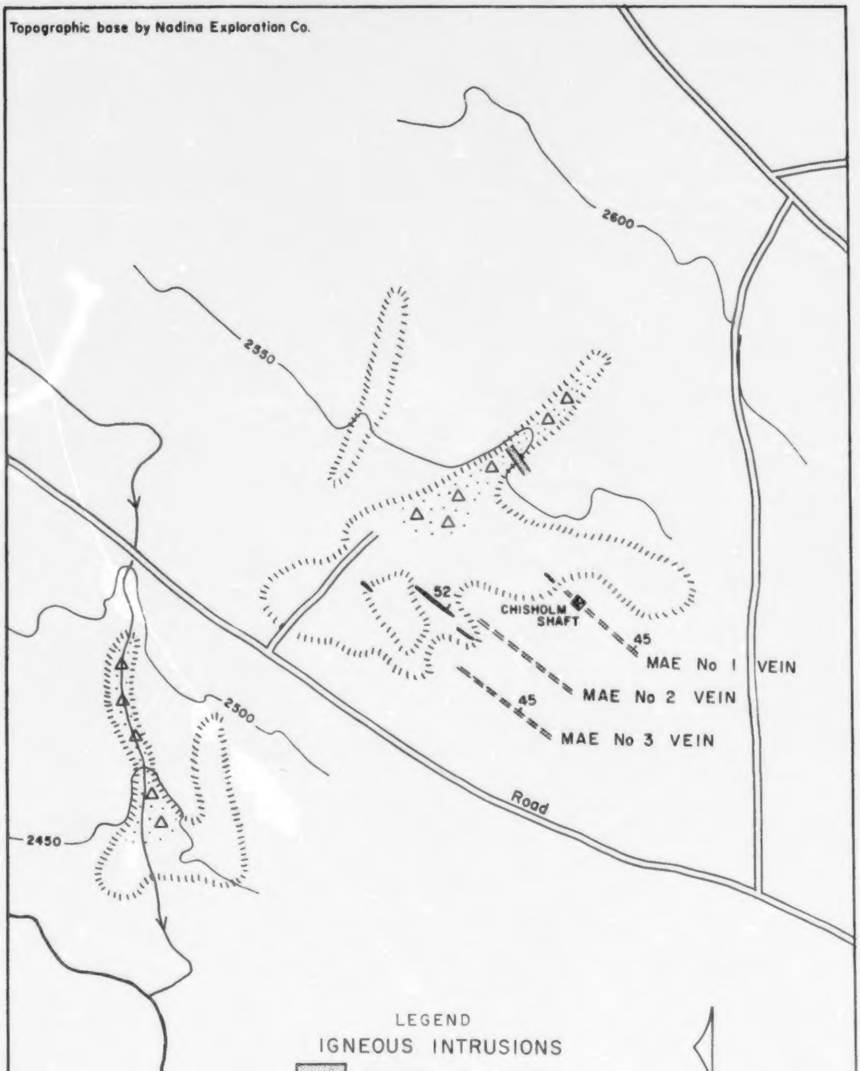

Topographic base by Nadina Exploration Co.
2600
2550
2500
2450
52
CHISHOLM SHAFT
45
45
MAE No 1 VEIN
MAE No 2 VEIN
MAE No 3 VEIN
Road
OWEN LAKE
LEGEND
IGNEOUS INTRUSIONS
Aphanitic pulaskite dyke
BEDDED ROCKS
Tuff-breccia
-2300— Contour interval 50 feet
Excavation
Vein
Astro. North
SCALE
0
100
200
FEET

Figure 25. Nadina Explorations Limited, Chisholm vein system.

from the main crosscut. The vein is discontinuous and lens-like but measures 3 feet wide in places. A well-banded section strikes 160 degrees and dips 78 degrees southwest.

Earl adit vein No. 1 is traced approximately 180 feet in a north-branching drift. The vein is generally steeply dipping and somewhat sinuous in strike. The mineralogy is variable and in places the vein is composite, consisting of pyrite-chalcopyrite and sphalerite-galena phases. Near the north end of the drift the vein terminates against a feldspar-porphyry trachyte dyke.

The Chisholm vein system consists of three subparallel veins—Mae vein No. 1, Mae vein No. 2, and Mae vein No. 3, located about 4,000 feet south of Mine Hill. These are now poorly exposed but can be traced 150 to 200 feet along strike in a series of old trenches and a few new excavations (*see* Fig. 25). The veins strike about 125 degrees and dip northeasterly. The minerals are mainly argentiferous sphalerite and galena, pyrite; chalcopyrite is scarce. The host rocks consist of highly altered dacitic tuffs and tuff breccias.

A newly discovered vein, compositionally similar to the veins of the Chisholm system, is about 3,500 feet southeast of Earl adit portal midway between the Wrinch and Chisholm vein systems. The vein is 3 feet wide and strikes southeasterly. An assay of a grab sample containing fine-grained sphalerite, galena, pyrite, barite, and cherty quartz shows: Gold, 0.24 ounce per ton; silver, 6.5 ounces per ton; copper, 0.11 per cent; lead, 5.56 per cent; zinc, 16.55 per cent; iron, 5.20 per cent; manganese, 1.56 per cent; cadmium, 0.10 per cent; arsenic, *nil;* antimony, 0.05 per cent; bismuth, *nil;* barium, 6.96 per cent.

Mineralization

The veins are mainly the result of fissure-filling. This is proved by their vuggy structure and the colloform banding of the ore minerals and gangue. The exact amount of dilation of fissures prior to mineralization is difficult to estimate owing to the partial replacement of wallrocks by pyrite and other vein minerals; however, the average width of the veins is 3 to 4 feet, increasing to as much as 15 feet locally.

At least four distinctive mineral assemblages are recognized. These are, as follows, in approximate order of deposition:—

(1) Pyrite, specularitic hematite.
(2) Sphalerite (ruby jack), pyrite, galena, tennantite.
(3) Chalcopyrite, pyrite, sphalerite, bismuthinite(?), tetrahedrite(?).
(4) Sphalerite (amber), pyrite, galena.

The gangue constituents are mainly cherty quartz, carbonate minerals such as rhodochrosite and siderite, some barite, and rarely pyrobitumen. These assemblages occur as single veins or more commonly as lenses and layers in composite veins.

The veins show a rough zonal arrangement. The Wrinch and portal vein systems in the Mine Hill area are composite, reflecting a history of pulsating mineralization with many changes in the temperature and composition of the hydrothermal solutions. On the other hand, in outlying areas such as near Cole Lake and the Chisholm shaft, the veins are uniformly carrying the low-temperature assemblage, sphalerite-pyrite-galena.

The ratio of gold to silver for most veins is in the range of 3:1000 to 10:1000. Highest precious metal values are commonly in chalcopyrite-pyrite ores, such as vein No. 5 and Earl adit vein No. 1, and sphalerite-rich ores containing accessory tetrahedrite or tennantite, such as the Ruby extension of vein No. 4. The results of X-ray and spectrographic analyses of a sample of tennantite from the Ruby extension are given in a table on page 139. The slightly larger than normal cell edge of the tennantite suggest that it is an argentiferous variety.

The composition of sphalerite shown by 22 spectrographic analyses reveals moderately high cadmium content, in the range 0.20 to 1.20 per cent. The cell edge of these sphalerites determined from X-ray analyses is small, 5.406 angstroms. This is in agreement with low-average iron content, 0.96 per cent (maximum, 3.50 per cent), and low manganese, a trace to 0.10 per cent.

Local intense alteration of wallrocks accompanies the veins and adjacent fissures. The lateral extent of the alteration zones is variable, ranging from several feet to tens of feet in breadth. Typically, the altered rocks are cream coloured and soft and have low magnetic susceptibility. At surface the veins are usually capped by a compact black deposit of manganese oxide (*see* Plate VIB). In the microdiorite, the plagioclase phenocrysts are evident as small greenish laths and plates. Thin-section studies show that the altered rocks consist of a mixture of clay and carbonate mineral, some chlorite, and minor epidote, and disseminated pyrite. Also, chemical analyses show that important iron and magnesium metasomatism is attendant to the alteration (*see* Table of Chemical Analyses, p. 138).

Widespread alteration is also present. The affected country rock is mainly volcanic breccia exposed within a 1½-mile radius of Mine Hill. The alteration is manifested in the development of numerous limonite and jarosite gossans and appears to be the result of pervasive kaolinization pyritization. It is considered that the extent of this alteration is greater than would normally be associated with the emplacement of the known vein systems. A deep and broad source of mineralizing solutions is suspected and the discovery of replacement-type sulphide bodies appears to be a possibility.

A statistical study of the geochemical data from five widely spaced Kennco-Nadina diamond-drill holes provides ancillary information on the mineralogy of the altered country rock remote from the vein systems (*see* the position of diamond-drill holes K1 to K5 on Figure 21). Most of the core from these holes is known to contain at least some disseminated pyrite and local concentrations of dark sphalerite specks; however, other sulphides were not readily identified. The product moment correlation coefficients calculated for silver, copper, zinc, and iron from the five holes are given in the Table of Correlation Coefficients on page 138. Examination of these data from hole K4 shows remarkably good frequency correlation between iron, copper, and silver. This is interpreted as indicating the presence of argentiferous chalcopyrite in the core. Similarly, in hole K3, a correlation is found between copper and silver which may indicate tetrahedrite. Other correlations are found in hole K2 between silver and zinc and in hole K1 between silver and copper, and a negative correlation between copper and iron.

The age of the vein mineralization is thought to be Eocene or at least Early Tertiary. This is indicated by the relationship of the veins to the Ootsa-type feldspar-porphyry trachyte dykes and fine-grained pulaskite dykes on Mine Hill. The feldspar-porphyry dykes are coincident with the initial phase of mineralization and clearly pre-date the main episodes of vein-filling; however, the vein fissures were open and had already received some pyritiferous solutions before these dykes were emplaced. This is demonstrated by vein No. 6 and Earl adit vein No. 11 (*see* Fig. 23). These veins terminate abruptly against the same steeply dipping feldspar-porphyry dyke. In both cases, however, small pyrite-bearing leads are traced beyond the dyke on the face opposite the main vein, proving the pre-dyke origin of the vein fissure system. The pulaskite intrusions post-date most of the mineralization. This is well displayed on the lower level of the mine where a pulaskite dyke has intruded the west part of vein No. 4, splitting and crosscutting the vein in several places and running parallel to it for a distance of about 1,000 feet. Similarly, pulaskite dykes and sills were found intruding vein No. 3 on the upper level and Earl adit veins No. 2 and No. 12.

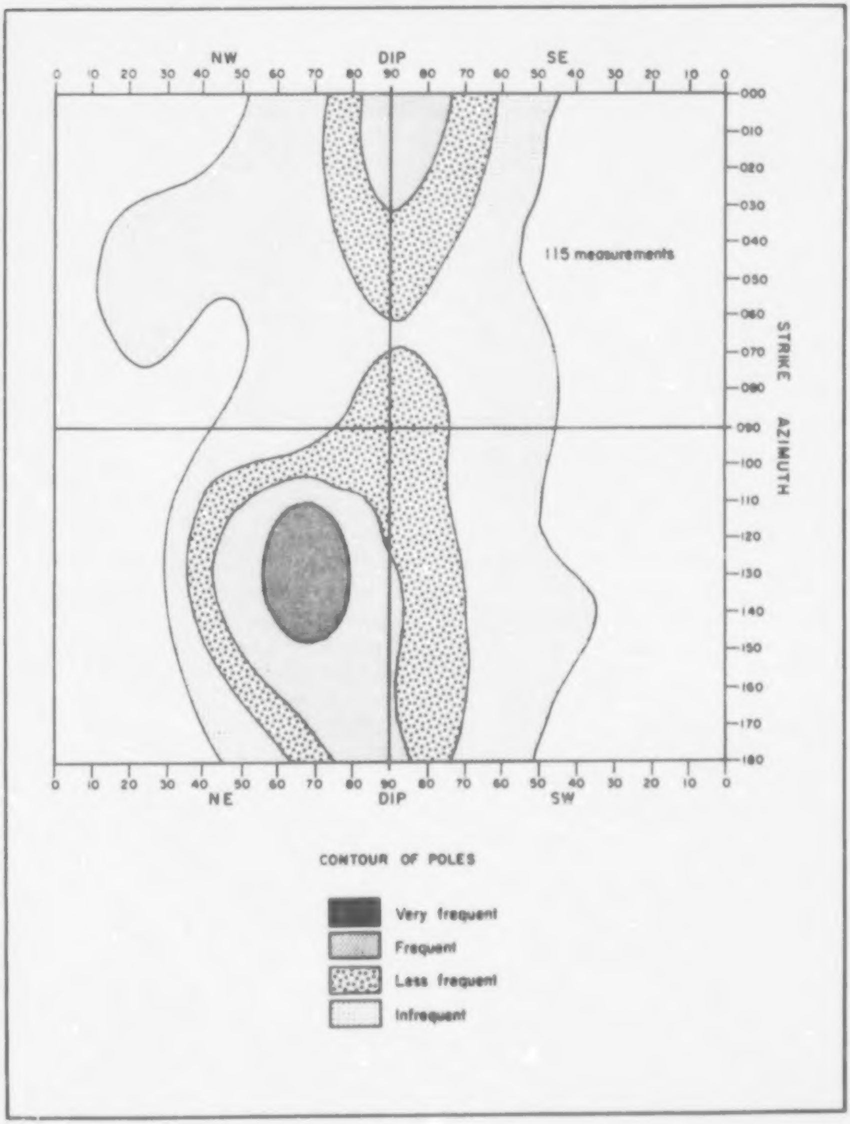


Figure 26. Nadina Explorations Limited, plot of fractures, Mine Hill area.

Structure

The attitude and frequency of fractures in the Mine Hill area is shown on Figure 26. The strongest joints strike about 130 degrees and dip 68 degrees northeast. This attitude coincides with prominent topographic lineaments, the main vein directions and shears. Other strong fractures strike northerly and dip steeply to the east. Weak fractures include cross-joints striking east and dipping steeply, and sheeting joints which strike about 050 degrees and dip 25 degrees northwest.

A study of slickensides reveals the attitude and direction of movement on faults and shear planes. An equal area plot of slickensides shows two important

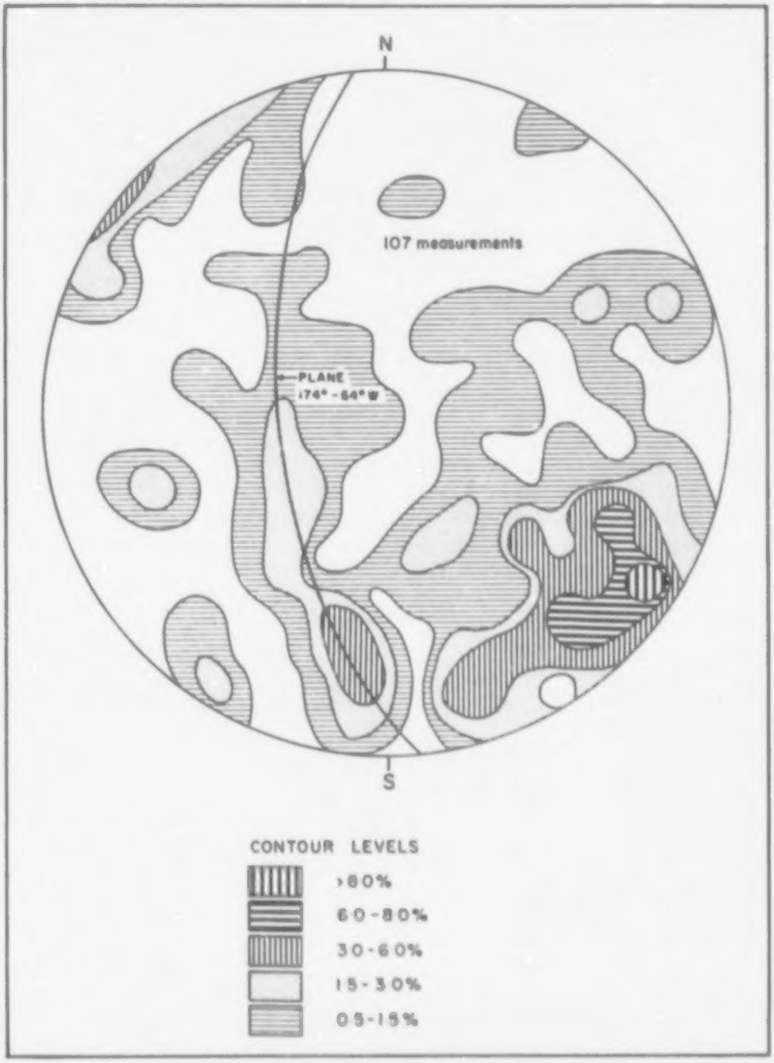


Figure 27. Nadina Explorations Limited, equal area diagram of slickenside attitudes, Mine Hill area.

directions in the Mine Hill area, a strong slickenside polarization at strike 123 degrees plunge 12 degrees southeast and a weaker polarization at 190 degrees plunge 30 degrees south (*see* Fig. 27). The angular distance between these slickenside poles is 60 degrees. This indicates that the maximum stress axis responsible for the formation of these structures must have had a strike orientation of approximately 150 degrees plunge 25 degrees southeast. This geometry suggests that many steep northerly striking fractures in the Mine Hill area have sinistral strike-slip displacement, whereas movement on steep southeasterly striking fractures is dextral; tension fractures are contained between these shears. The dispersion of slickenside poles about the plane striking 174 degrees, dipping 64 degrees west indicates that this is a common fault direction containing strong strike-slip displacement, together with some reverse or normal movement.

Much of the post-mineralization faulting in the Mine Hill area appears to be of a minor nature. This is evident from the marked continuity of the feldspar-porphyry trachyte dyke system (*see* Fig. 23). These dykes are readily traced on surface and through the underground workings. The maximum observed fault displacement is near the west end of vein No. 4 on the upper and lower levels of the mine where a feldspar porphyry dyke is offset about 50 feet on a steeply dipping tear fault. Shearing and faulting in Wrinch Creek canyon clearly predates the dykes and veins. Both basalt and feldspar porphyry dykes are known to traverse the canyon with little or no offset.

The general pattern of the vein systems is not fully understood; however, it is thought that the main veins are fillings of northwesterly trending tension fractures and replacements along northerly trending shears developed in response to the stress geometry described above. Most of the veins on the Nadina property are the former type, with a number of modifications. For example, veins Nos. 1 to 3 in the Wrinch vein system appear to form part of a " cymoid loop." These veins strike subparallel in the area northwest of Wrinch Creek and converge in the area to the southeast. Veins Nos. 4, 6, and 7 are arranged in a pattern best described as a " chatter link." Vein No. 4 is through-going and strikes southeasterly, roughly parallel to vein No. 7. Vein No. 6 and a subsidiary branching vein continue on the same fissure system as vein No. 7 but strike sharply toward vein No. 4, forming a cross connection. The portal system forms what appears to be a tight in echelon series of overlapping but unconnected vein lenses. This pattern is incomplete; however, this may be due to poor exposure in the area.

Most of the vein systems on the Nadina property are open at both ends and much additional surface and underground exploration work is required before an adequate structural synthesis can be fully realized.

Tabulation of Assays

Vein System	Vein	Location	Samples			Gold	Silver	Copper	Lead	Zinc	Source of Data
			Number	Length	Average Width						
				Ft.	Ft.	Ounce/Ton	Ounce/Ton	Per Cent	Per Cent	Per Cent	
Wrinch	No. 1	Surface	4	600	6.7	0.02	6.3	0.66	1.6	5.3	B.C. Ann. Rept., 1965.
Wrinch	No. 2	Surface	12	1,200	6.4	0.02	2.8	0.1	4.3	6.2	B.C. Ann. Rept., 1965.
Wrinch	No. 3	Upper level, south drift	Numerous	560	3.4	0.07	7.8	2.77	0.81	6.7	Nadina Ann. Rept., 1969.
Wrinch	No. 3	Upper level, north drift	Numerous	50	3.0	0.05	6.1	2.55	0.21	0.96	Nadina Ann. Rept., 1969.
Wrinch	No. 4	Surface	Numerous	1,000	4.0	0.17	10.1	0.2	2.8	5.6	Nadina Ann. Rept., 1969.
Wrinch	No. 4 (MacKay vein)	Surface	5	300	4.8	0.06	5.9	0.14	4.3	7.7	B.C. Ann. Rept., 1965.
Wrinch	No. 4	Upper level	Numerous	204	6.5	0.11	6.46	0.33	2.39	6.93	Nadina Ann. Rept., 1969.
Wrinch	No. 4	Earl adit-level	Numerous	848	5.0	0.08	7.5	0.45	1.8	7.9	Nadina Ann. Rept., 1969.
Wrinch	No. 4 (Ruby extension)	Earl adit-level	Numerous	620	4.0	0.19	16.0	0.68	1.8	5.9	Nadina Ann. Rept., 1969.
Portal	No. 5	Surface	17	210	2.5–3	0.078	26.71	5.55	0.33	2.68	Nadina records; press release, November, 1969.
Portal	No. 5	Surface	8	110	3.8	0.22	29.45	3.57	0.21	0.73	Nadina records; press release, November, 1969.
Unclassified	No. 6	Surface	Several	250	3.5	0.13	3.4	0.37	2.20	6.40	Nadina records.
Unclassified	No. 6 (north branch)	Surface	......	......	3.7	0.10	3.0	0.11	2.10	10.20	Nadina records.
Unclassified	No. 7	Surface	......	......	3.0	0.07	4.8	0.93	2.00	8.44	Nadina records.
Portal	Earl adit No. 1	Earl adit	30	80	5.0	0.12	26.5	2.57	0.82	5.28	Old company records.
Portal	Earl adit No. 2	Earl adit	22	150	3.5	0.04	5.7	0.60	0.47	7.06	Old company records.
Portal	Earl adit No. 3	Earl adit	4	30	3.5	0.01	1.5	0.5	0.6	5.2	Old company records.
Portal	Earl adit No. 4	Earl adit	7	......	1.8	0.01	1.5	0.1	0.16	3.5	Old company records.
Portal	Earl adit No. 5	Earl adit	5	......	0.8	0.01	3.56	0.8	0.38	5.1	Old company records.
Unclassified	Earl adit No. 9	Earl adit	......	......	......	......	3.8	0.63	1.2	4.0	Old company records.
Unclassified	Earl adit No. 10	Earl adit	......	200	1.5	......	4.0	1.6	0.9	1.2	Old company records.
Unclassified	Earl adit No. 11	Earl adit	5	220	2.0	0.04	8.2	1.2	0.56	1.4	Old company records.
Wrinch	Earl adit No. 12	Earl adit	9	30	9.4	0.02	3.76	0.3	3.3	9.6	B.C. Ann. Rept., 1965.
Wrinch	Earl adit No. 13	Earl adit	4	250	7.5	0.04	5.7	2.5	1.7	8.0	Nadina records.
Wrinch	Earl adit No. 13 north splay	Earl adit	3	70	1.4	0.05	12.05	7.01	0.72	4.02	Consultant's report to Nadina, 1965.
Chisholm	Mae No. 1	Shaft	2	Spot	1–2	0.10	9.6	0.16	2.08	16.6	Nadina records.
Chisholm	Mae No. 2	Surface	3	100	2.3	0.09	22.47	......	9.2	2.5	Old company records.
Chisholm	Mae No. 3	Surface	5	270	3.5	0.03	5.7	......	1.9	6.7	Old company records.

Correlation Coefficients " R " Calculated for Geochemical Results from Kennco-Nadina Diamond-drill Holes Nos. 1 to 5

Diamond-drill Holes	Ag		Zn		Cu		
	Arithmetic	Logarithmic	Arithmetic	Logarithmic	Arithmetic	Logarithmic	
K1	−0.250	−0.255	−0.202	−0.304	−0.411	−0.408	Fe
K2	0.450	0.294	0.172	0.218	0.023	−0.020	
K3	0.028	0.029	0.239	0.317	−0.161	−0.087	
K4	0.894	0.791	0.299	0.537	0.742	0.663	
K5	−0.104	−0.032	0.225	0.384	0.128	0 134	
K1			0.097	0.073	−0.102	−0.096	Ag
K2			0.441	0.631	−0.039	0.114	
K3			0.219	0.366	0.563	0.528	
K4			0.102	0.252	0.739	0.875	
K5			−0.023	0.108	−0.333	−0.299	
K1					0.455	0.722	Zn
K2					0.023	0.278	
K3					0.368	0.426	
K4					0.376	0.453	
K5					0.254	0.263	

Number of samples K1, 28; K2, 29; K3, 16; K4, 11; K5, 37.

$$\text{Formula: } R = \frac{\Sigma(x)(y) - (\Sigma x \Sigma y)/n}{\sqrt{(\Sigma x^2 - (\Sigma x)^2/n)(\Sigma y^2 - (\Sigma y)^2/n}}$$

R = 1 for perfect correlation.

R = 0 for no correlation.

Data calculated from computer programme designed by W. J. McMillan, Mineralogical Branch, British Columbia Department of Mines and Petroleum Resources.

Table of Chemical Analyses

	1	2	3	4
SiO_2	57.92	57.50	57.59	45.55
TiO_2	0.74	0.79		
Al_2O_3	17.74	17.33	18.83	16.92
Fe_2O_3	3.10	3.78 }	6.67	16.92
FeO	2.84	3.62 }		
MnO	0.18	0.22		
MgO	1.40	2.86	1.98	6.71
CuO	6.13	5.83	5.03	1.74
Na_2O	3.61	3.53		
K_2O	3.25	2.36		
BaO	0.18			
P_2O_5	0.22	0.30		
SO_3	0.07			
H_2O+	2.28	1.88		
H_2O-	0.11			
CO_2	0.11			

KEY TO TABLE OF CHEMICAL ANALYSES

1. Analysis of fresh microdiorite from Wrinch Creek area; analysis by S. Metcalfe, British Columbia Department of Mines and Petroleum Resources.
2. Average composition of augite andesite by Daly (1933); Table 1 Average Compositions, No. 50, p. 16.
3. Partial analysis of fresh microdiorite from surface, Owen Lake mine; analysis No. 1, p. 79A, Lang (1929).
4. Partial analysis of propylitized microdiorite, Owen Lake mine, analysis No. 2, p. 79A, Lang (1929).

X-ray Data on Tennantite

I	d	Sin$^2\phi$	(L k l)
4	4.164	.03422	211
1	3.656	.04439	220
5	3.308	.05421	310
1	3.084	.06239	—
10	2.926	.06932	222
2	2.725	.07987	321
5	2.538	.09211	400
3	2.394	.10352	330
1	2.272	.11496	420
1	2.082	.13637	422
4	1.998	.14858	510
1	1.903	.16380	—
4	1.859	.17163	521
10	1.801	.18298	440
1	1.746	.19460	530
2	1.653	.21720	611
1	1.623	.22517	620
9	1.537	.25121	622
2	1.473	.27349	444
2	1.440	.28604	711
2	1.371	.31568	642
2	1.277	.36364	800
1	1.256	.37629	733
1	1.220	.39842	653

Cell edge calculated from Sin$^2\phi$ values, 10.25 angstroms.

Spectrographic results:—

Per Cent
Fe — 5.
Cu — major constituent.
Pb — 1.5.
Zn — more than 10.

Per Cent
As — more than 10.
Sb — 5.
Cd — 0.3.
Ag — present.

DIAMOND BELLE (No. 907, Fig. 13)

By B. N. Church

LOCATION: Lat. 54° 06′ Long. 126° 42′ (93L/2E)
Adjoins the Nadina property on the northeast.

CLAIMS: Twenty-two claims, including DIAMOND BELLE, BLACK BEAR, ETHEL, IVAN FR., VAN 1 to 9, VAN No. 1 FR., BELL 1 to 3, BELL No. 1 to 5 FR.

ACCESS: The property is about 30 miles south of Houston on a good gravel road.

OWNER: FRONTIER EXPLORATION LIMITED, 642 Clark Drive, Vancouver 6.

METALS: Silver, lead, zinc, copper.

WORK DONE: An aeromagnetic reconnaissance survey of the entire property was performed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1916, pp. 144, 159; 1923, pp. 114, 116; 1925, p. 142; 1927, p. 139; 1928, p. 170; 1966, p. 104.

DESCRIPTION:

Introduction

The history of the Diamond Belle property closely parallels that of the Silver Queen. The original claims were located by Mr. Cole and partners in 1915 in an area of vein mineralization northeast of the Silver Queen claim and immediately west of a shallow pond now known as Cole Lake (*see* Fig. 21). The Owen Lake

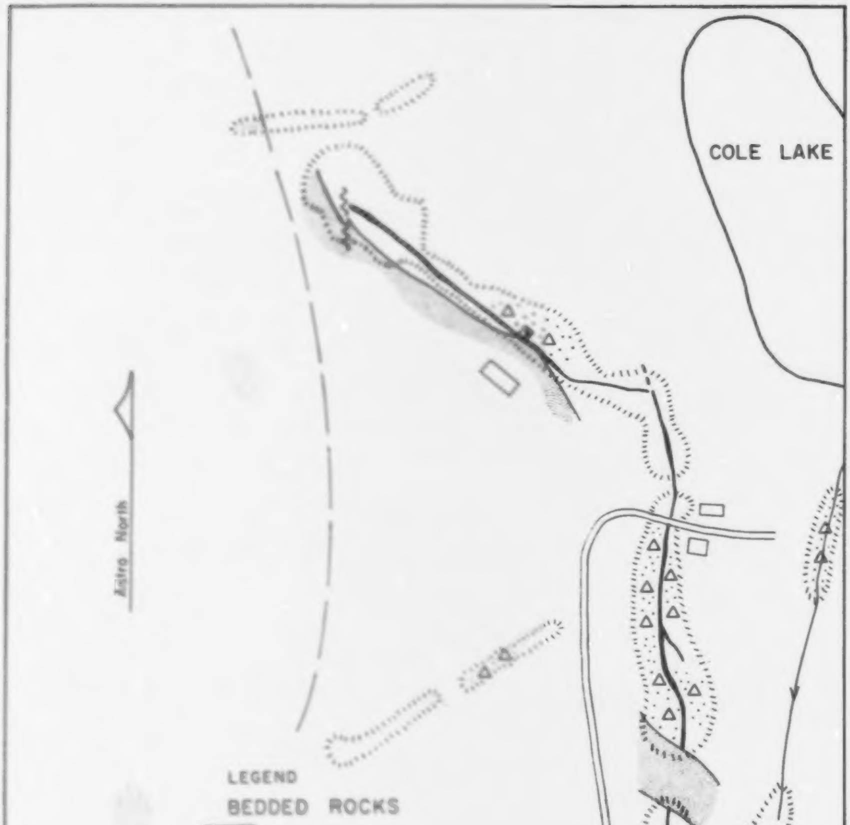

COLE LAKE
Astro North
LEGEND
BEDDED ROCKS
Tuff-breccia
IGNEOUS INTRUSIONS
Microdiorite intrusions
Aphanitic pulaskite dyke
Vein
Excavation
Road
SCALE
0
100
200
FEET

Figure 28. Frontier Exploration Limited, Cole vein system.

Mining and Development Co. obtained control of the ground in 1928 and sank an 80-foot-deep shaft on the main vein. The next significant period of activity began when Frontier Exploration Limited acquired the holdings in 1966. The work of this company, which includes diamond drilling and extensive trenching, has revealed some important new mineralization.

Geology

The general setting of the Cole vein system is shown on Figure 28. The system consists of two main veins, the Diamond Belle vein and the " shear vein." The Diamond Belle vein has been the focus of most of the early exploration, the Cole shaft being located on this vein at a point about 250 feet west of Cole Lake. The vein averages 2 to 3 feet wide and strikes about 130 degrees over the central part; the southeasterly part swings in an easterly direction before pinching out and the northwest segment is deflected along the east contact of a pulaskite dyke which strikes about 150 degrees. The vein is generally well banded with some colloform structures which probably formed as a result of fissure-filling. The ore minerals are mainly sphalerite, galena, and pyrite, with accessory chalcopyrite and a gangue composed of cherty quartz, carbonate minerals such as rhodochrosite, and some barite. According to published assay results (press release, April, 1969), the composition of this vein over a length of 600 feet and an average width of 2.8 feet is as follows: Gold, 0.01 ounce per ton; silver, 2.5 ounces per ton; copper, 0.20 per cent; lead, 3.2 per cent; zinc, 2.8 per cent.

The so-called " shear vein " was recently uncovered near the east end of the Diamond Belle vein about 150 feet west of Cole Lake. This vein is steeply dipping like the Diamond Belle vein, but strikes in a northerly direction. The vein is exposed at intervals for a length of about 700 feet. The mineralization is patchy and discontinuous and appears to be the result of replacement and cavity-filling in a shear zone. According to published statements (press release, April, 1969), the vein averages 6.3 feet wide for a selected 400-foot length and contains gold, 0.13 ounce per ton; silver, 8.8 ounces per ton; copper, 0.45 per cent; lead, 3.3 per cent; zinc, 3.4 per cent.

The host rocks consist of kaolinized and pyritized dacitic volcanic breccia. The Mine Hill microdiorite sill crops out a few hundred feet to the west of the major veins and a pulaskite dyke strikes northwesterly through the area cutting the shear vein and the extreme north end of the Cole vein.

GARY (No. 913, Fig. 13)

LOCATION: Lat. 54° 07.3′ Long. 126° 38′ (93L/2E)
One mile west of Upper Parrott Lake, about 5 miles northeast of Owen Lake.
CLAIMS: GARY 1 to 16.
ACCESS: By road, 20 miles from Houston and thence 1 mile on foot.
OWNER: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.
WORK DONE: Fifty-eight samples collected for a geochemical reconnaissance survey.

JIM (No. 912, Fig. 13)

LOCATION: Lat. 54° 01.7′ Long. 126° 48′ (93L/2W)
Adjoins Duck Lake to northeast, 3 miles southwest of Owen Lake.
CLAIMS: JIM 1 to 50.
ACCESS: By road, 30 miles from Houston.

OWNER: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

WORK DONE: Two hundred and seventy samples were collected for a geochemical survey.

SPOOK, PARK (No. 914, Fig. 13)

LOCATION: Lat. 54° 02.6′ Long. 126° 40′ (93L/2E)
Northeast of Bellelliot Lake, 2½ miles southeast of Owen Lake.

CLAIMS: SPOOK, PARK, including 99 claims in all.

ACCESS: By road, 28 miles from Houston.

OWNER: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary, Alta.

WORK DONE: Five hundred and twenty-five samples were collected for a geochemical survey.

GOOSLY LAKE

SG (SAM GOOSLY) (No. 467, Fig. 13)

By B. N. Church

LOCATION: Lat. 54° 11′ Long. 126° 16′ (93L/1E, 1W)
Thirty-three miles by road southeast of Houston.

CLAIMS: Three hundred and seven claims; SG (62), SNOW (15), and T (230).

ACCESS: A good all-weather gravel road runs from Houston to Goosly Lake and logging and company roads provide good access to the west and west-central parts of the property during dry weather.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, One Bentall Centre, 730, 505 Burrard Street, Vancouver 1.

METALS: Copper, silver.

WORK DONE:

A geological map of the SG and SNOW claims was prepared at 1 inch to 1,000 feet and a more detailed map at 1 inch to 400 feet was begun.

The geophysical work included 16.2 miles of induced polarization survey, about 23 miles of ground magnetometer survey, and total coverage by airborne magnetometer and electromagnetic surveys.

Geochemical work included the determination of copper, molybdenum, silver, lead, and zinc in 2,930 soil samples and 360 silt samples.

Diamond drilling included 26 BQ holes totalling 16,905 feet.

In addition, the company roads were generally improved by grading and installation of culverts; 4.8 miles of new roads was added.

REFERENCE: Assessment Report No. 1683.

DESCRIPTION:

The Sam Goosly property is located on a hilly, rolling part of the Nechako Plateau (Fig. 29). A radial system of tributary streams emanates from a high central area of plutonic rocks at an elevation of 5,300 feet. These streams drain on the southwest toward Buck Creek, at an elevation of about 3,000 feet, and on the northeast toward Foxy Creek at about 4,000 feet. The area is generally well forested below the 4,800-foot elevation except for a burn in the west and west-central part of the property.

Conflicting evidence was found for both direction and sense of glacial ice movement through the area. The most recent ice advance appears to have been from westerly to easterly at 075 degrees, according to measurements on a strong glacial striæ set. This is in agreement with Holland's (1964, p. 101) regional interpretation. However, granite erratic boulders found several hundred feet southwest of

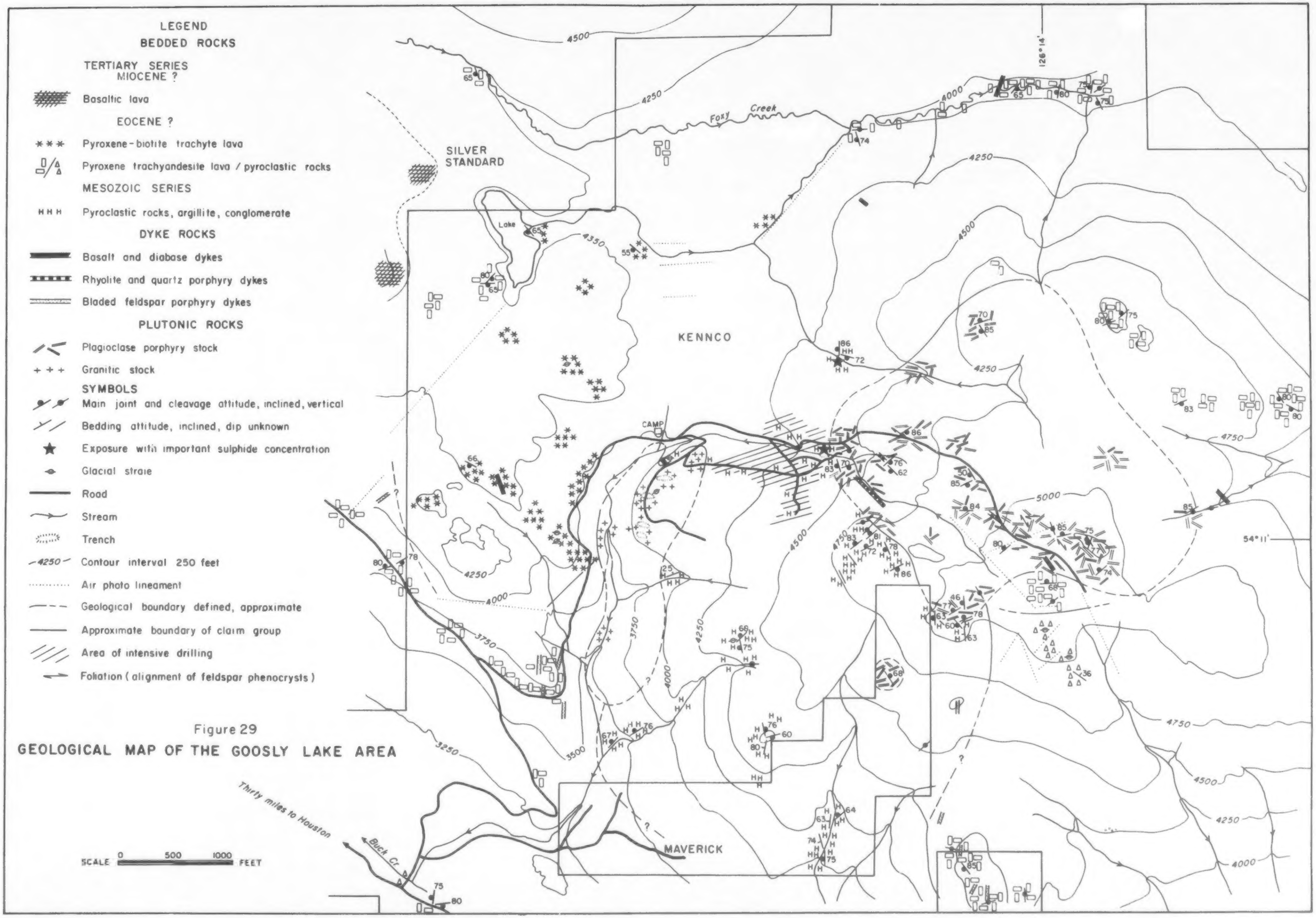

LEGEND
BEDDED ROCKS
TERTIARY SERIES
MIOCENE ?
Basaltic lava
EOCENE ?
Pyroxene-biotite trachyte lava
Pyroxene trachyandesite lava / pyroclastic rocks
MESOZOIC SERIES
Pyroclastic rocks, argillite, conglomerate
DYKE ROCKS
Basalt and diabase dykes
Rhyolite and quartz porphyry dykes
Bladed feldspar porphyry dykes
PLUTONIC ROCKS
Plagioclase porphyry stock
Granitic stock
SYMBOLS
Main joint and cleavage attitude, inclined, vertical
Bedding attitude, inclined, dip unknown
Exposure with important sulphide concentration
Glacial straie
Road
Stream
Trench
4250 Contour interval 250 feet
Air photo lineament
Geological boundary defined, approximate
Approximate boundary of claim group
Area of intensive drilling
Foliation (alignment of feldspar phenocrysts)
SCALE 0 500 1000 FEET
SILVER STANDARD
KENNCO
MAVERICK
CAMP
Lake
Foxy Creek
Buck Cr.
Thirty miles to Houston
126°14'
54°11'
4500
4250
4000
4350
3750
3500
3250
5000
4750

Figure 29

GEOLOGICAL MAP OF THE GOOSLY LAKE AREA

a source area in the west-central part of the property were apparently transported by an earlier southerly-moving ice sheet. Clay-rich glacial deposits cover most of the area and bedrock exposures are scarce except on ridges and in some creek beds. Clay-free gravel suitable for road metal is locally available along stream channels and in the main valleys.

The property is underlain by gently-dipping relatively-fresh Tertiary volcanic rocks and a succession of steeply-dipping metamorphosed Mesozoic volcanic and sedimentary beds. The Mesozoic and oldest Tertiary rocks are cut by stock-like granite and feldspar porphyry igneous intrusions. The Tertiary strata consist of a plateau basalt sequence, thought to be the local equivalent of the Endako Formation (Miocene), and an older trachyte-trachyandesite volcanic sequence, equivalent to the Ootsa Formation (Eocene). The formal status of the names Endako and Ootsa in the stratigraphic nomenclature of this region is not yet clear.

The basalts occur as near-horizontal lava and pyroclastic beds on the bluffs north of Foxy Creek and in the northwest corner of the claim group. Although erosion has stripped away much of the unit, it is clear that these rocks once extended across the area as a continuous sheet with local thickness in excess of 600 feet. Individual lava flows, exposed as benches on some hillsides, average more than 100 feet thick.

The older Tertiary volcanic sequence underlies about three-quarters of the property. These rocks are more variable in attitude than the basalt beds and are locally inclined as much as 35 degrees. The sequence is divided into upper and lower members on the basis of petrographic differences of the lavas and on the cutting relationships of the central feldspar porphyry stock and related dykes. The upper member is post-stock in age and consists of cream-coloured biotite trachyte and non-porphyritic trachyte lava. These rocks appear to be flat lying and to cover a relatively small area in the northwest part of the property. The lower member is pre-stock in age and is intruded by numerous distinctive bladed feldspar porphyry dykes (*see* Plate VIIA). This unit is characterized by an abundance of light brown trachyandesite lava containing platy plagioclase phenocrysts (about 20 per cent) and rounded pyroxene phenocrysts (from 1 to 5 per cent). No quartz was visible in thin-section; however, a chemical analysis of a typical sample of this rock shows 7.4 per cent normative quartz (analysis No. 3, Table of Chemical Analyses). Locally the lavas are stained greenish-blue owing to the presence of the mineral celadonite in cracks and vesicles; this mineral is sometimes mistakenly identified in the field as copper carbonate.

Generally these Tertiary volcanic rocks are not mineralized; however, some pyrite is found in vesicles in trachyandesite flows and dykes exposed along Foxy Creek in the northeast part of the property.

The Mesozoic beds are exposed as widely scattered outcrops in a window eroded in Tertiary cover rocks in the central and southern part of the property. In the southern area the beds dip steeply west and graded sandstone units show that bedding tops face west. The general succession, passing from what are probably the stratigraphically lowest beds on the east to the highest on the west (assuming no local folding), consists of the following units (*see* Fig. 29):—

1. Shales and sandstones (cropping out along a southerly-flowing creek).
2. Lithic sandstones and conglomerates (exposed on a knoll).
3. Massive, light-coloured tuff (near the headwaters of a westerly-flowing creek).
4. Light-coloured chert pebble conglomerate (exposed near the mouth of the westerly-flowing creek).

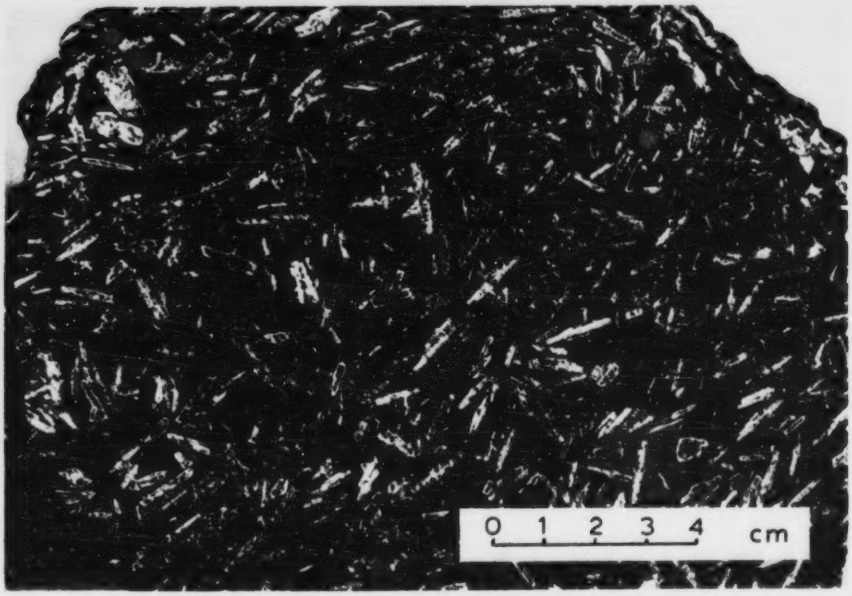


Plate VIIA.—Bladed feldspar-porphyry dyke rock, 1½ miles southwest of the Kennco camp-site.

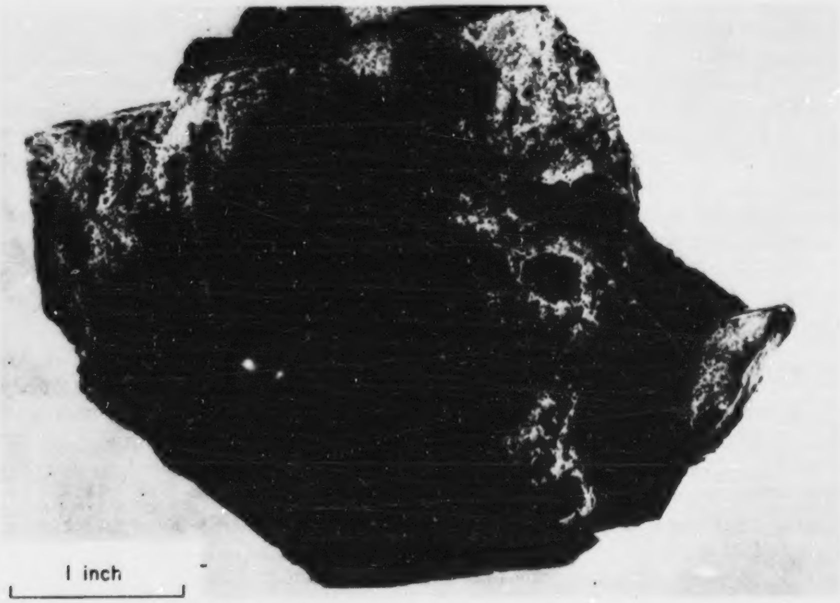


Plate VIIB.—Weakly banded rhyodacite, dark areas consist of very fine-grained pyrite, chalcopyrite, and tetrahedrite.

To the north these rocks are squeezed between a granite stock on the west and a somewhat larger feldspar porphyry body on the east. The best exposures are found near the feldspar porphyry. There the rocks are sheared pyroclastics with minor intercalations of conglomerate and sandstone. The most northerly exposure of Mesozoic rocks, found along a northwesterly flowing tributary of Foxy Creek, consists of highly altered tuff and chert pebble conglomerate.

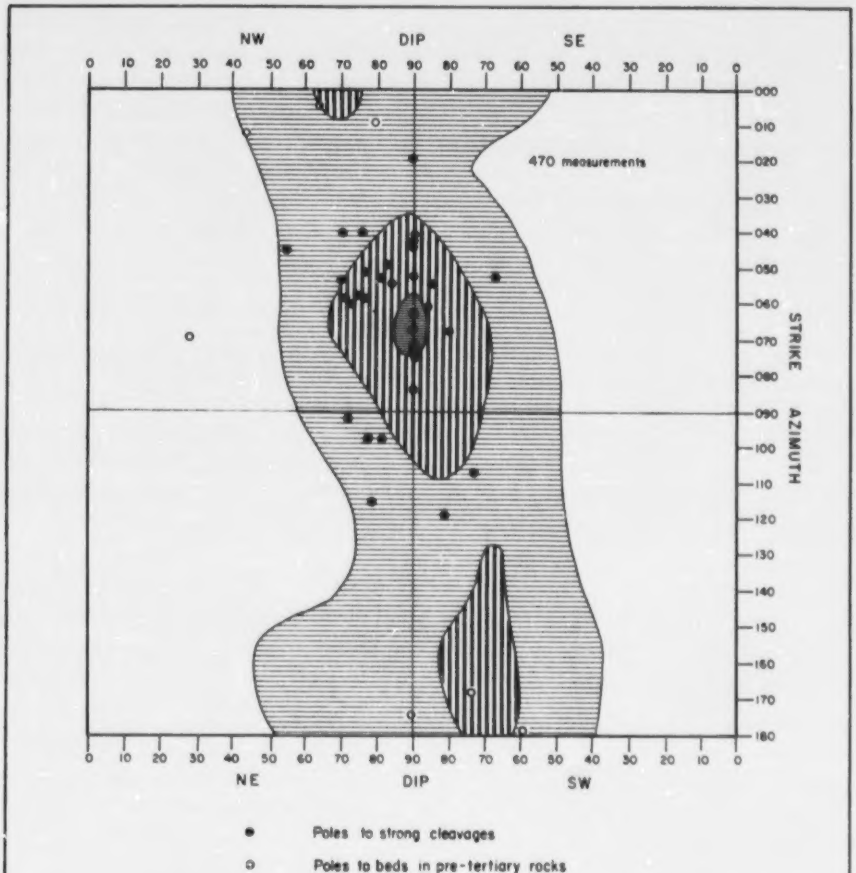


Figure 30. Kennco Explorations, (Western) Limited, Sam Goosly property, plot of fractures and beds.

Arc fusion determinations of a suite of 15 volcanic rocks from the Mesozoic succession indicate a narrow composition range from rhyodacite (R.I., 1.506) to dacitic andesite (R.I., 1.542). Chemical analysis of a composite sample of these rocks shows 29.0 per cent normative quartz (analysis No. 4).

Little is known of the over-all structure of the Mesozoic rocks because of poor bedrock exposure. However, data gathered from scattered outcrops shows two strong joint sets, one at azimuth 060 degrees dip 90 degrees and a slightly weaker set at azimuth 160 degrees dip 70 degrees southwest (*see* Fig. 30). The former direction coincides approximately with a strong cleavage attitude; the latter corresponds roughtly to the main bedding attitudes.

Topographic lineaments trending northeasterly, are present in the Tertiary lavas near the west and north boundaries of the property. These lineaments are clearly related to recent fracturing and are subparallel and probably related to the strong cleavages found in the Mesozoic rocks.

The plutonic rocks consist of an elongate granite stock in the west-central part of the property and a larger feldspar porphyry intrusion covering the central and east-central area.

In general the granite is poorly exposed. The rock is light-coloured and medium-grained where visible in a few trenches and stream beds. Stain tests and thin-section studies show that the rock is technically best described as a microporphyritic adamellite.* Rectangular and polygonal crystals of plagioclase and a few biotite flakes, averaging 2 to 4 millimetres in diameter, are crowded together and set in a fine-grained matrix of mainly quartz and potassium feldspar. A sample submitted for chemical analysis (analysis No. 1) shows the following mineralogy:—

Phenocrysts	Per Cent	Matrix	Per Cent
Plagioclase	50	Quartz	23
Quartz	2	Potassium feldspar	18
Biotite	2	Biotite	2
Potassium feldspar	1	Magnetite	2

These rocks and the adjacent country rocks are locally mineralized. A geochemical survey by Kennco shows that some soils overlying the intrusive contain as much as 1,000 p.p.m. copper and 30 p.p.m. molybdenum. Flakes of molybdenite and grains of pyrite are scattered through the country rocks near the north contact.

A potassium-argon age of 56.2±3 million years was obtained by N. C. Carter at U.B.C. on a fresh sample collected by the writer in a trench near the centre of the granite intrusion.

The feldspar porphyry intrusion is generally well exposed above tree line, however, the exact position of the northern and eastern boundary is uncertain owing to cover. The rock is medium blue-grey and characteristically contains large platy plagioclase phenocrysts. In section the plagioclase commonly occurs as subparallel laths one or two centimetres long. These crystals are set in a medium-grained matrix of potassium feldspar, augite and minor biotite, magnetite, and quartz. Modal analysis of a sample from the central area of the stock shows the following composition:—

---

* The term adamellite was defined originally by Tröger, 1935, as "orthoclase-bearing tonalite."

Phenocrysts	Per Cent
Plagioclase (An_{45})	40

Matrix	Per Cent
Potassium feldspar	25
Plagioclase	18
Augite	8
Magnetite	5
Biotite	2
Quartz	2
Apatite	<1

Chemical analysis of the same sample (analysis No. 2) is similar to the averaged compositions of subalkaline augite syenite and monzonite given by Daly (1933). The term " syenomonzonite " appears to be the most applicable petrographic name for this rock.

There is a general chemical similarity between the feldspar porphyry or " syenomonzonite " (analysis No. 2) and the Ootsa trachyandesite lava (analysis No. 3). This is compatible with the belief that these rocks are genetically related and that the feldspar porphyry stock is actually a feeder to part of the Ootsa volcanic assemblage in the area.

A potassium-argon date of 48.8±3 million years was obtained by N. C. Carter at U.B.C. on a sample of a biotiferous phase of the feldspar porphyry stock collected by the writer near the west contact.

The main zone of mineralization appears to be in a 100- to 200-foot wide pyroclastic phase of the Mesozoic strata located immediately to the west of the western extremity of the feldspar porphyry stock. The proximity of the ore to the stock suggests a genetic relationship, however, this is not yet clearly proved. The mineral assemblage consists of chalcopyrite, pyrite, tetrahedrite, and locally some specular hematite. The host rock, visible in a few trenches and stream courses, is generally bleached and kaolinized with small clasts showing replacement by fine-grained sulphides. Structures such as flow banding in rhyodacite lava are well preserved in spite of marked sulphide replacement (*see* Plate VIIB). An assay of a composite sample from an open cut in the creek 1,500 feet east of the Kennco camp gives: Gold, 0.05 ounce per ton; silver, 4.7 ounces per ton; copper, 1.04 per cent; zinc, 0.023 per cent; lead, 0.015 per cent; antimony, 0.10 per cent.

It is known that the period of mineralization must have continued later than 48.8±3 million years, the age of the feldspar porphyry stock, since rhyolite dykes, probably of upper Ootsa age, are found to cut the feldspar porphyry stock and are themselves locally pyrite-bearing.

CHEMICAL ANALYSES OF ROCKS FROM THE GOOSLY LAKE AREA

	1	2	Average A+B	A	B	3	C	4
Oxides Recalculated to 100								
SiO_2	67.00	54.65	54.52	52.03	57.00	57.83	58.94	67.50
TiO_2	0.67	1.88	0.86	0.61	1.11	1.30	1.13	1.04
Al_2O_3	16.20	17.57	17.97	17.88	17.22	18.15	17.57	20.00
Fe_2O_3	2.18	4.11	4.56	4.45	2.97	5.12	4.04	1.50
FeO	1.58	3.75	3.68	3.29	4.07	1.46	3.24	3.99
MnO	0.04	0.14	0.20	0.24	0.16	0.08	0.05	0.09
MgO	1.30	3.98	3.73	4.14	3.32	3.27	1.27	1.47
CaO	3.30	6.25	7.01	7.41	6.60	6.40	4.29	1.09
Na_2O	4.32	4.25	4.05	4.38	3.73	4.27	5.78	0.76
K_2O	3.69	3.42	3.42	3.02	3.82	2.12	3.69	2.56
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Oxides as Determined								
H_2O^+	1.69	1.90				1.17		2.80
H_2O^-	0.21	0.18				1.44		0.22
CO_2	0.08	0.02				0.02		0.01
P_2O_5	0.28	0.91				0.44		0.09
SO_3	0.01	1.01				0.02		0.48
Molecular Norms								
Quartz	17.7	0.1				7.4		29.0
Orthoclase	21.7	20.8				12.6		15.6
Albite	38.8	37.5				38.3		7.1
Anorthite	13.9	18.5				24.0		5.6
Wollastonite	1.0	4.9				3.1		----
Enstatite	3.6	11.0				9.0		4.2
Ferrosilite	----	----				----		3.8
Ilmenite	0.9	2.6				1.8		1.5
Magnetite	2.3	4.6				0.7		1.6
Hematite	----	----				3.1		----
Kaolin	----	----				----		31.6

Key to Table

1. Central area of granite stock; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Petroleum Resources.
2. West boundary of feldspar porphyry stock; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Petroleum Resources.
3. Trachyandesite lava from the west boundary of the Kennco property; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Petroleum Resources.
4. Composite sample of altered Mesozoic dacite volcanic rocks, central area of the Kennco property; analysis by S. Metcalfe, Analytical Laboratory, British Columbia Department of Mines and Peroleum Resources.

A. "Subalkaline" augite syenite; analysis No. 16, p. 11 from Table 1 Average Compositions; R. A. Daly, 1933.

B. Monzonite; analysis No. 30, p. 13 from Table 1 Average Compositions; R. A. Daly, 1933.

C. Trachyandesite; analysis No. 32, p. 13 from Table 1 Average Compositions; R. A. Daly, 1933.

RAY (No. 459, Fig. 13)

By B. N. Church

LOCATION: Lat. 54° 11′ Long. 126° 26′ (93L/1W)

The property is approximately 20 miles by road southeast from Houston. The square-shaped claim block lies between Buck Creek and the main Goosly Lake road just west of Goosly Lake.

CLAIMS: RAY 1 to 40.

ACCESS: The property is serviced by a side logging-road branching to the northeast from the main Goosly Lake road.

Owner: ISKUT SILVER MINES LTD., 534 Burrard Street, Vancouver 1.

Work Done: Geochemical analysis of 450 soil samples for silver and copper using dithizone and atomic absorption methods.

Reference: *Geol. Surv., Canada*, Map 671A, Houston Map-area.

Description: The claim group lies about 7 miles west of the new copper-silver discovery of Kennco Explorations, (Western) Limited. Much of the property covers low ground in the meander belt of Buck Creek with little possibility of bedrock exposure. Lang's (1942) regional map of the area indicates a window of Mesozoic volcanic rock along Klo Creek to the northeast of the property, but this has not yet been verified by Department of Mines and Petroleum Resources mapping.

DEV (No. 925, Fig. 13)

By B. N. Church

Location: Lat. 54° 09′ Long. 126° 09′ (93L/1E)

Approximately 28 air miles southeast of Houston and 7 miles east of Goosly Lake.

Claims: DEV 1 to 80, DEV 1 to 5 Fractions.

Access: By helicopter from Goosly Lake.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: A total of 335 soil samples was collected for geochemical analysis.

Reference: *Geol. Surv., Canada*, Map 5302G (Colleymount).

Description: The property is about 5 miles southeast of Kennco Explorations, (Western) Limited's new Goosly Lake copper-silver discovery. The aeromagnetic map of the region shows that the central and northeast claims are centred over magnetic highs whereas the western and southernmost claims lie toward magnetic lows. The numerous dipole magnetic anomalies in the areas of high elevation probably indicate the presence of Tertiary plateau basalt lava flows. This would indicate that better prospecting ground lies at lower elevations such as near Allin Creek.

KG (No. 466, Fig. 13)

By B. N. Church

Location: Lat. 54° 08′ Long. 126° 24′ (93L/1W)

About 25 miles by road southeast of Houston, and 2½ miles southwest of Goosly Lake.

Claims: KG 1 to 10, 21 to 30.

Access: The property is about 1 mile south of the main Goosly Lake road and is serviced on the east and west by secondary logging-roads.

Owner: PANTHER MINES LTD., 333, 885 Dunsmuir Street, Vancouver 1.

Work Done: Line-cutting.

Reference: Assessment Report No. 2207.

Description: The property lies between elevations of 2,900 and 3,300 feet and is heavily wooded. The Geological Survey of Canada Aeromagnetic Map 5302G shows a positive magnetic anomaly of about 100 gammas extending from the northwest corner of the claim block to the central area. The anomaly is probably a topographic effect since it is coincident with a low ridge. Department of Mines and Petroleum Resources Map 69-1 shows an outlier of Tertiary basalt (Endako) underlying the ridge immediately to the east of the property.

KG (No. 466, Fig. 13)

Location: Lat. 54° 08′ Long. 126° 22′ (93L/1W)
About 25 miles by road southeast of Houston and 2½ miles south of Goosly Lake.

Claims: KG 11 to 20, 31 to 40.

Access: By road from Houston.

Owner: BAYLAND MINES LTD., 1614, 1030 West Georgia Street, Vancouver 5.

Work Done: Geochemical survey.

Reference: Assessment Report No. 2196.

SAM (No. 464, Fig. 13)

By B. N. Church

Location: Lat. 54° 10′ Long. 126° 16′ (93L/1W)
The property is about 2 miles east of Goosly Lake and approximately 30 miles by road southeast of Houston.

Claims: SAM 1 to 19.

Access: An excellent gravelled logging-road joins the west end of the L-shaped claim group to the main Goosly road located about 1 mile to the southwest at Buck Creek.

Operator: MAVERICK MOUNTAIN RESOURCES LIMITED, 534, 789 West Pender Street, Vancouver 1.

Work Done: Line-cutting at 400-foot intervals; soil samples taken at 200-foot intervals along the lines and analysed for copper and silver; a detailed geology and outcrop map prepared at 400 feet to the inch.

References: Assessment Report No. 2124; *B.C. Dept. of Mines,* Map 69-1.

Description:

The property is an enclave in the southern part of a large block of claims owned by Kennco Explorations, (Western) Limited (*see* Fig. 29). It is directly south and apparently on strike with Kennco's new copper-silver prospect. Although bedrock exposure in the area is generally poor it seems clear that much of the northeast claim area is underlain by an isolated appendage of the Eocene plagioclase porphyry (syenomonzonite) stock which forms the highest local topographic feature at the centre of the Kennco holdings. Southwest of this intrusion, exposures along a southerly-flowing creek reveal a succession of steep westerly dipping Mesozoic shales, sandstones, and some pyroclastic beds cut by Tertiary dykes. A small knob at about 4,500 feet elevation, directly north of the central part of the claim group is underlain by steep Mesozoic conglomeratic beds with graded units clearly indicating tops facing west. The westernmost claims are largely covered with glacial drift and heavy timber, however, a small westerly-flowing tributary stream, located immediately to the north, exhibits a remarkably thick ferrocrete deposit from a point near 3,900 feet elevation to near the mouth of the creek. Exposures at the headwaters of this creek reveal light-coloured, brittle, dacitic pyroclastic beds and a well-indurated, light-coloured, chert pebble conglomeratic unit along the lower reaches of the creek—both units are believed to be Mesozoic.

NWB (No. 474, Fig. 13)

By B. N. Church

Location: Lat. 54° 07′–13′ Long. 126° 10′–22′ (93L/1E, 1W)
The claims are in four groups adjoining the Sam Goosly property of Kennco Explorations, (Western) Limited located 18 miles southeast of Houston.

Claims: NWB 1 to 75, 80 to 93; JH 1 to 28; WD 1 to 10, 12 to 48; ACR 1 to 15.

Access: The main Goosly Lake road passes through the northern part of the most westerly claims of the NWB group, immediately south of Goosly Lake, and a well-graded logging-road branches to the northwest providing access to the ACR claims located about 1½ miles north of Goosly Lake.

Owner: DORITA SILVER MINES LTD., 808, 602 West Hastings Street, Vancouver 2.

Work Done: A reconnaissance geological survey (at 1 to 50,000 scale) was performed on the WD, JH, and ACR claim groups, and a more detailed survey was carried out on the NWB group. Geochemical work included a programme of soil and silt sampling. The company also reports that four 600-foot-long trenches were bulldozed.

References: *B.C. Dept. of Mines,* Map 69-1; *Geol. Surv., Canada,* Map 671A; Assessment Reports Nos. 2310 and 2311.

Description: The NWB claim group adjoins Kennco's Sam Goosly property on the south. There is a possibility that the window exposing mineralized pre-Tertiary rocks on Kennco's ground extends south under glacial drift and alluvium to the central NWB claims. Geological Survey of Canada Map 671A indicates that similar old rocks crop out on the south shore of Goosly Lake in an area covered by the westernmost NWB claims. Volcanic rocks, which are considered to be the equivalent of the Tertiary Endako and Ootsa Formations, are locally exposed on many of the remaining claims.

Morice Lake

KING, QUEEN, JACK (No. 468, Fig. 13)

Location: Lat. 54° 01′ Long. 127° 20′ (93L/3W)
Four miles south of McBride Lake at an elevation of 4,000 feet.

Claims: Total of 30, including KING 1 to 10; QUEEN 1 to 6; JACK 1 and 2; PINE 1 to 4; PI 1 to 4; SQUEEK 1 to 4.

Access: From Houston by road, a distance of 50 miles.

Owner: E. Westgarde, Houston.

Operator: FALCONBRIDGE NICKEL MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: Eight men spent three weeks on the property under the supervision of D. H. Brown. Surface showings were examined and two holes totalling 655 feet were drilled.

Description: Disseminated chalcopyrite and molybdenite occur in quartz diorite and quartz monzonite.

Burns Lake

JIM, GREEN (No. 916, Fig. 13)

Location: Lat. 54° 18′–20′ Long. 125° 35′–39′ (93K/5E)
Astride Ling Creek south of the south end of Pinkut Lake, 11 miles northeast of Burns Lake.

Claims: JIM, GREEN, totalling 72 claims in all.

Access: By road, 11 miles from Burns Lake.

Owner: SUMMIT OILS LIMITED, 1110, 540 Fifth Avenue S.W., Calgary 1, Alta.

Work Done: Two hundred and sixty-five samples collected for a reconnaissance geochemical survey.

ENDAKO

CHESS (No. 409, Fig. 13)

LOCATION: Lat. 54° 07′ Long. 125° 10′ (93K/3E)
Surrounding and southeast from Cheskwa Lake, 6 miles west of Endako village, at 2,500 to 3,000 feet elevation.

CLAIMS: CHESS 1 to 48.

ACCESS: By four-wheel-drive vehicle from Highway No. 16.

OWNER: MERCURY EXPLORATIONS LIMITED, 700, 1281 West Georgia Street, Vancouver 5.

WORK DONE: A reconnaissance induced polarization survey was run over 4½ line-miles on about half of the claim area; R. E. Chaplin, in charge.

REFERENCE: Assessment Report No. 2002.

KEN (No. 483, Fig. 13)

LOCATION: Lat. 54° 08.6′ Long. 125° 05.2′ (93K/3E)
Between elevations of 2,500 and 2,800 feet at the northwest corner of Tatin Lake, 4 miles north of Endako.

CLAIMS: KEN 1 to 58.

ACCESS: By road, 10 miles from Endako.

OWNER: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METAL: Molybdenum.

WORK DONE: A ground magnetometer survey was run over 26 line-miles on the KEN 1 to 24 claims; a VLF-EM survey was run over 12 line-miles on the KEN 1 to 6, 10, 12, 22 claims; induced polarization and resistivity surveys were run over 9 line-miles on the KEN 1 to 6, 10, 12, 22 claims; 21 trenches, total length 3,400 feet, were bulldozed in overburden; and 2.3 miles of road was built.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 144; Assessment Report No. 1871.

SAM (No. 449, Fig. 13)

LOCATION: Lat. 54° 03.5′–05.5′ Long. 125° 09.5′–13.5′ (93K/3E)
Five miles northwest of the Endako mine.

CLAIMS: SAM 1 to 54, 60 to 67, and 80 to 87.

ACCESS: From Endako, 7 miles by road.

OWNER: ENDAKO MINES LTD., Endako.

WORK DONE: Chain and compass and geological surveys, 6 line-miles of induced polarization and 16 line-miles of magnetometer surveys, and a geochemical survey in which 600 soil samples were collected and analysed. E. T. Kimura, supervisor.

BONUS (No. 401, Fig. 13)

LOCATION: Lat. 54° 05′ Long. 125° 03′ (93K/3E)
On Highway No. 16, 2 miles west of Endako village.

CLAIMS: BONUS 1 to 23.

OWNER: MERCURY EXPLORATIONS LIMITED, 700, 1281 West Georgia Street, Vancouver 5.

WORK DONE: Six miles of induced polarization surveys on eastern half of claim group; R. E. Chaplin, consultant.

REFERENCE: Assessment Report No. 1979.

NU, ELK (No. 425, Fig. 13)

Location: Lat. 54° 0.3′ Long. 125° 08.5′ (93K/3E)
One and one-half miles northwest of the Endako mine.

Claims: Sixty-five including the NU, ELK, DEER, DIS, and DAT groups.

Access: By 6 miles of road from Highway No. 16.

Owner: DENAK MINES LTD., c/o Endako Mines Ltd., Endako.

Metal: Molybdenum.

Work Done: Thirty-four of the claims were surveyed by transit. Six line-miles of induced polarization survey, approximately 50 line-miles of magnetometer survey, and a geochemical survey (1,500 soil samples) were performed on the claims. Three miles of road was constructed through the central part of the property and two NQWL holes were drilled to 800 feet total depth. E. T. Kimura supervised the work.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 115; 1968, p. 143.

Description: A stockwork of quartz-molybdenite-pyrite-magnetite veins occurs in kaolinized and sericitized quartz monzonite.

CO (No. 426, Fig. 13)

Location: Lat. 54° 03′ Long. 125° 05′ (93K/3E)
One and one-half miles northeast of the Endako mine.

Claims: CO 1 to 25.

Access: Six miles by road from Endako.

Owner: Tormont Mines Limited.

Operator: ENDAKO MINES LTD., Endako.

Metal: Molybdenum.

Work Done: Four NQWL holes totalling 1,005 feet were diamond drilled. E. T. Kimura, supervisor.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 144.

Description: A stockwork of quartz-molybdenite-pyrite-magnetite veins in kaolinized and sericitized quartz monzonite.

ENDAKO MINE (No. 460, Fig. 13)

Location: Lat. 54° 0.2′ Long. 125° 06.5′ (93K/3E)
North of the east end of Francois Lake, 115 miles west of Prince George.

Claims: Three hundred and fifty-five claims of which 18 are under lease.

Access: By paved road from Highway No. 16, 1 mile east of the village of Endako.

Owner: ENDAKO MINES LTD., Endako (controlled and managed by Canadian Exploration Limited); J. D. Wright, mine manager; company office, 1218, 1030 West Georgia Street, Vancouver 5.

Metal: Molybdenum (*see* Table 12 for production).

Work Done: Ore mined, 12,814,800 tons; overburden stripped, 2,260,000 cubic yards. Nineteen diamond-drill holes totalling 12,100 feet were drilled. A new roaster was installed in the roasting plant adjacent to the mill. The connected load for this plant is 133 horsepower. The old roaster was converted into a dryer with no increase in connected load. An extension was made to the pit shop and a 30-horsepower crane was installed. Forty-five kilowatts of floor heating was also installed. The 150-horsepower drive motor on No. 10 conveyor was replaced with a 200-horsepower motor. The wiring was rearranged in the baghouse and two screw conveyors were installed. A new slab was laid and 5 kilowatts of floor heating was installed.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1965, pp. 136–138; 1966, p. 117; 1967, pp. 114–115; 1968, p. 142.

NITHI MOUNTAIN

OWL, NIT (No. 451, Fig. 13)

LOCATION: Lat. 53° 55.5′ Long. 124° 50′ (93F/15W)
Three miles south of Nithi Mountain, between elevations of 3,000 and 4,000 feet.

CLAIMS: OWL 1 to 11, 13 to 17, 19; NIT 1 to 10, 13 to 16.

ACCESS: From Fraser Lake village, 12 miles by road.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METALS: Molybdenum, copper.

WORK DONE: Four line-miles of induced polarization survey was conducted over the central claims, T. Conto, in charge.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 144; Assessment Reports Nos. 1216 and 1689.

TETACHUCK LAKE

TET (No. 423, Fig. 13)

LOCATION: Lat. 53° 22′–24′ Long. 125° 31.5′–36′ (93F/5E)
On the north side of the Tetachuck River, 4 miles east of Tetachuck Lake, at 3,500 feet elevation.

CLAIMS: TET 1 to 85.

ACCESS: By fixed-wing aircraft; 60 miles from Burns Lake or by boat.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: The claims were geologically mapped. An induced polarization survey of 3 line-miles and a 400-sample geochemical survey were carried out. D. H. Olson supervised the work.

DESCRIPTION: Chalcopyrite, pyrite, and molybdenite occur as a low-grade, disseminated " porphyry-type " deposit in monzonite and metamorphosed volcanics.

NAT (No. 424, Fig. 13)

LOCATION: Lat. 53° 10′–12.3′ Long. 125° 51′–55′ (93F/4W)
Five miles northwest of Captain Harry Lake at approximately 4,500 feet elevation.

CLAIMS: NAT 1 to 104.

ACCESS: Seventy miles from Burns Lake by fixed-wing aircraft and by helicopter.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: Geological and geochemical surveys were carried out on the claims. Approximately 900 soil samples were taken for analysis. D. H. Olson was in charge.

T, CAP, TUT (No. 487, Fig. 13)

LOCATION: Lat. 53° 12′–22′ Long. 125° 08′–27′ (93F/3E, 3W, 6E, 6W)
Around Capoose Lake, 7 miles south of the junction of Entiako River and Natalkuz Lake, 17 miles southwest of the Kenney Dam.

CLAIMS: T 1 to 1177, 148 CAP claims, TUT 1 to 28, totalling 1,353 claims.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum, zinc.

WORK DONE: Stream and soil geochemical survey using 500 stream and 500 soil samples.

CHUTANLI LAKE

C, 2 (No. 456, Fig. 13)

LOCATION: Lat. 53° 21′ Long. 124° 30′ (93F/7E, 8W)
At the west end of Chutanli Lake.

CLAIMS: C 1 to 126, 131 to 180; 2 (TWO) 1 to 44.

ACCESS: By float plane, 75 miles from Burns Lake.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: A topographic map of the property was made and geological mapping was done on C 1 to 44 claims. Magnetometer and induced polarization surveys were run over 16 line-miles on the C 1 to 44 claims. Approximately 1,000 soil samples were collected from C 1 to 70 claims for analysis. A trench, 25 feet long and 28 feet deep, was blasted and five holes totalling 2,250 feet were diamond drilled. The work was supervised by A. G. Troup and R. Hewton.

REFERENCE: Assessment Report No. 2097.

DESCRIPTION: Molybdenite, chalcopyrite, and pyrite occur in siliceous, kaolinized, and chloritized volcanic rocks.

CHU (No. 422, Fig. 13)

LOCATION: Lat. 53° 21′ Long. 124° 33′ (93F/7E)
Three miles west of the west end of Chutanli Lake, at 3,500 feet elevation.

CLAIMS: CHU 1 to 68.

ACCESS: From Burns Lake, 80 miles by helicopter.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: Fifty stream silt and soil samples were taken for analysis. D. H. Olson, supervisor.

DESCRIPTION: Chalcopyrite, pyrite, pyrrhotite, and molybdenite occur in volcanic rocks of the Takla Group.

FRASER BASIN

Fort St. James

HAT (No. 400, Fig. 13)

LOCATION: Lat. 54° 51′ Long. 124° 18′ (93K/16W)
Between Hatdudatehl and Taslincheko Creeks, 28 miles north of Fort St. James at approximately 3,000 feet elevation.

Claims: HAT 1 to 40.
Access: By helicopter from Fort St. James or overland from the Manson Creek road, a distance of 5 miles.
Owner: W. R. BACON, 102, 1111 West Georgia Street, Vancouver 5, for the N.B.C. Syndicate.
Metal: Copper.
Work Done: Magnetometer and electromagnetic surveys over most of the claims; W. R. Bacon, consultant.
Reference: Assessment Report No. 1933.

TOAD (No. 486, Fig. 13)

Location: Lat. 54° 42.4′ Long. 124° 35.1′ (93K/10E)
At elevation 2,300 feet at the southwest corner of Tezzeron Lake, north of Pinchi Lake mine.
Claims: TOAD 1 to 45.
Access: By logging-road, 10 miles from Pinchi Lake mine.
Owner: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.
Metal: Mercury.
Work Done: Geology of claims mapped, 22,000 feet of trenching in 15 trenches dug with bulldozer and a backhoe in overburden, and 6,000 feet of trenching done in 12 trenches in bedrock.
References: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 118; 1967, p. 117; 1968, p. 147; Assessment Report No. 1020.
Description: Traces of cinnabar in silica-carbonate alteration of serpentine.

PINCHI LAKE MINE (No. 411, Fig. 13)

By W. G. Clarke

Location: Lat. 54° 37.5′ Long. 124° 24.5′ (93K/9W)
On the north shore of Pinchi Lake.
Claims: One hundred and sixty-nine mineral claims.
Access: By 29 miles of good gravel road from Fort St. James.
Owner: COMINCO LTD., Box 220, Fort St. James; mine office, Pinchi Lake; K. V. S. Meyer, superintendent.
Metal: Mercury.
Work Done: Underground: Drift advance, 1,130 feet; crosscut advance, 211 feet; raise advance, 260 feet; total development, 1,601 feet; diamond drilling, 14,366 feet. Surface: Diamond drilling, 2,968 feet. There were 111 men employed at the end of the year. Electric-heating systems were installed in the crusher and roasting plants adding 300 kilowatts to the connected load.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 145–147.

CIN (No. 411, Fig. 13)

Location: Lat. 54° 36′–40′ Long. 124° 20′–32′ (93K/9W, 10E)
On northeast side of Pinchi Lake, from 2,500 to 4,150 feet elevation.
Claims: CIN, 71 in all.
Access: Twenty-eight miles by road from Fort St. James.
Owner: HIGHLAND MERCURY MINES LIMITED, 300, 999 West Pender Street, Vancouver 1.
Metal: Mercury.
Work Done: Mapping of surface workings and 14 diamond-drill holes; J. LaPrairie, supervisor.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 118; 1968, p. 147; Assessment Report No. 686.

Description: *See* Minister of Mines and Petroleum Resources Annual Report, 1966, page 118.

CALEX (No. 484, Fig. 13)

Location: Lat. 54° 29.5′ Long. 124° 08′ (93K/8E)
Just north of Fort St. James–Manson Creek highway, 6 miles northeast of Fort St. James near northeast corner of Lot 4753.

Claims: CALEX 1 to 4; LAF 2, 3, 4, 9; HAWK 1 to 5; FROG 1 to 4; WREN 1 to 4.

Access: By road, 6 miles from Fort St. James.

Owners: Ralph Hall, R. A. Goodwin, and E. D. Vinnedge.

Operator: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

Metal: Mercury.

Work Done: Surface workings and geology mapped on CALEX 1 claim; 5,000 square feet of overburden stripped, three pits 10 feet deep dug.

References: *Minister of Mines, B.C.*, Ann. Repts., 1956, p. 29; 1966, p. 118.

Description: Cinnabar occurs with quartz and carbonate in fractures in serpentinized, silicified, and carbonatized pyroxenite.

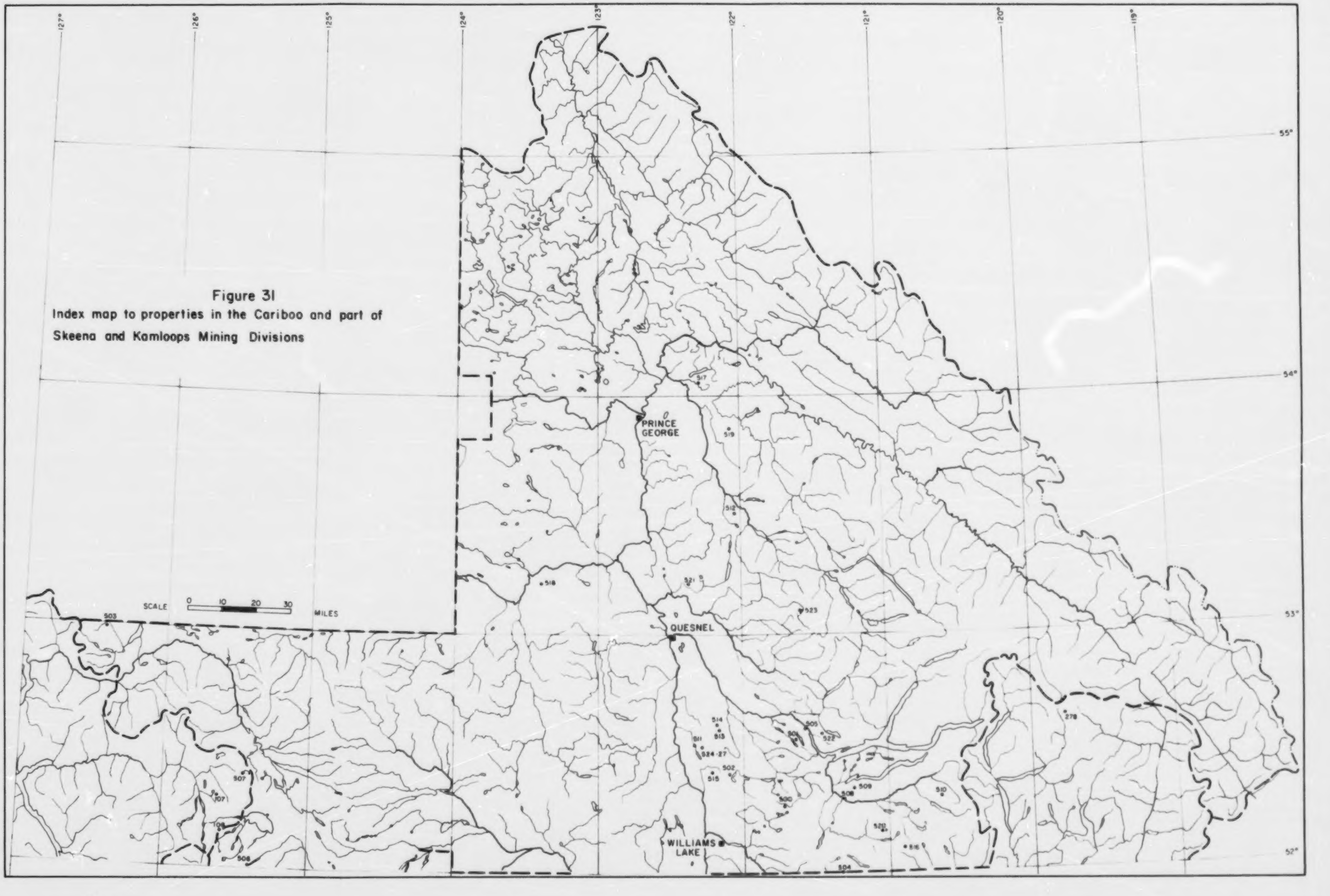


Figure 31

Index map to properties in the Cariboo and part of Skeena and Kamloops Mining Divisions

127°
126°
125°
124°
123°
122°
121°
120°
119°
55°
54°
53°
52°
SCALE
0
10
20
30
MILES
PRINCE GEORGE
QUESNEL
WILLIAMS LAKE
517
519
512
521
518
523
503
514
513
511
524-27
505
501
522
502
515
500
509
508
510
520
516
504
507
107
108
506
278

KEY TO PROPERTIES ON INDEX MAP, FIGURE 31

107	TEL, page 74.
108	ADA, page 74.
278	WOLF, MAGNET, CATHY, page 228.
500	WIGGINS CREEK, page 176.
501	CARIBOO-BELL, page 176.
502	TYEE, page 175.
503	BOOM, WILF, page 161.
504	SS, JE, JT, page 178.
505	POLLEY, RED ROCK, page 175.
506	KF, page 162.
507	MM, page 74.
508	HO, page 177.
509	FLY, page 177.
510	CS, EN, page 177.
511	AXEL, MAX, JIB, page 174.
512	TP, page 160.
513	BEN, page 174.
514	BURG, page 174.
515	BJ, JP, BARB, page 175.
516	BOSS MOUNTAIN MINE, page 178.
517	SAMSON, TIN, CAN, page 160.
518	B, page 161.
519	LOON, page 160.
520	MAG, page 177.
521	THUNDER, page 161.
522	MARINER C, page 176.
523	AURUM MINE, page 162.
524	JAN, SUMMIT, page 173.
525	SUNSET, page 173.
526	POLLYANNA, page 173.
527	HD, page 174.

CARIBOO MINING DIVISION

GISCOME

SAMSON, TIN, CAN (No. 517, Fig. 31)

LOCATION: Lat. 54° 04′ Long. 122° 19′ (93J/1W)
Between 2,000 and 2,600 feet elevation astride Bateman Creek, 1 to 2 miles southeast of Giscome.

CLAIMS: SAMSON 1 to 36, TIN 1 to 14, CAN 1 to 40, JHG 1 to 10, totalling 100 claims.

ACCESS: By road from Giscome.

OWNER: CENTRAL B.C. EXPLORATION LTD., 1726 West 14th Avenue, Vancouver 9.

METALS: Silver, lead, zinc, copper.

WORK DONE: Geochemical soil survey, using 858 samples collected on the JHG 1 to 9 and SAMSON 5 to 7 and 9 to 12 claims; 500 feet of bulldozing in four trenches; and 12 holes totalling 6,841 feet diamond drilled on TIN 1 to 14 and CAN 1 to 40 claims.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 150.

WILLOW RIVER

LOON (No. 519, Fig. 31)

LOCATION: Lat. 53° 51′ Long. 122° 06′ (93G/16E)
North side of Taspai Creek, 6 miles east of Willow River.

CLAIMS: LOON 1 to 16, FU-HU 1 to 48, STP 1 to 92, a total of 156 claims.

ACCESS: By road, 32 miles from Buckhorn.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

WORK DONE: Geology of LOON 1 to 16 claims mapped, 2.8 miles of induced polarization survey run on LOON 1 to 16 claims, 250 soil samples collected for geochemical survey, 1½ miles of road built, and one trench 300 feet long dug in bedrock.

REFERENCES: Assessment Reports Nos. 1633 and 1952.

TP (No. 512, Fig. 31)

LOCATION: Lat. 53° 30′ Long. 122° 02′ (93G/8E, 9E)
Three miles north of Teapot Lake, at approximately 4,500 to 5,400 feet elevation.

CLAIMS: TP 1 to 50.

ACCESS: By logging-roads, either northeast from Strathnaver on Highway No. 97 or southeasterly from Prince George via Willow River. A 2½-mile tractor trail was extended into the west portion of the claim group to facilitate access.

OWNER: W. R. BACON, for the N.B.C. Syndicate, 102, 1111 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Magnetometer and geochemical soil surveys. W. R. Bacon, in charge.

REFERENCE: Assessment Report No. 1849.

AHBAU CREEK

THUNDER (No. 521, Fig. 31)

LOCATION: Lat. 53° 11′–14′ Long. 122° 19′–23′ (93G/1W)
On Ahbau Creek, 3 miles east of Cinema.

CLAIMS: THUNDER 1 to 67, 77 to 96, 31A to 34A; KIM 1 and 2; MIKE 3 to 6, totalling 97 claims.

ACCESS: By road, 3 miles east from Highway No. 97 at Cinema.

OWNER: CARIBOO MINELANDS LTD., 210, 1685 Third Avenue, Prince George.

METALS: Copper, silver, gold.

WORK DONE: Geological, electromagnetic, and ground magnetometer surveys run over THUNDER 11 to 16, 19 to 22, 39, 40, 49, 50; KIM 1 and 2; and MIKE 3 to 6 claims; 4 miles of road constructed; and eight holes totalling 3,000 feet diamond drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 151; Assessment Report No. 2212 (line-cutting).

WEST ROAD RIVER

B (No. 518, Fig. 31)

LOCATION: Lat. 53° 12′ Long. 123° 20′ (93G/3W)
Between elevations of 2,500 and 4,000 feet, 5 miles southeast of the junction of the Euchiniko and West Road Rivers, 10 miles west of Pantage Lake.

CLAIMS: Approximately 90 B claims.

ACCESS: By road, 52 miles from Quesnel.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Geological mapping; induced polarization and magnetometer surveys; geochemical soil and silt survey using 300 samples; 27,500 square feet of overburden stripped by bulldozer; 3,000 feet of road built; 10 holes totalling 3,236 feet diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 151.

DESCRIPTION: Chalcopyrite, chalcocite, malachite, and azurite occur in shears and along the contact of ultrabasic rocks and granodiorite. Chalcocite, chalcopyrite, and molybdenite occur in fractures and fine disseminations in fresh granodiorite.

TWEEDSMUIR PARK

BOOM, WILF (No. 503, Fig. 31)

LOCATION: Lat. 52° 57.5′–53° 01′ Long. 126° 24′–30′ (93D/16W, 93E/1W)
West side of Ramsey Creek, at an elevation of 4,000 to 4,800 feet.

CLAIMS: BOOM 1 to 82, WILF 1 to 18.

ACCESS: Fifty miles from Bella Coola by helicopter.

OWNER: KERR ADDISON MINES LTD., 405, 1112 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

Work Done: An induced polarization survey of 8.8 line-miles was conducted over BOOM 21 to 26, 32 to 34, and WILF 9 and 10 claims; T. Larose was in charge.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 150.

CHARLOTTE LAKE

KF (No. 506, Fig. 31)

Location: Lat. 52° 01′ Long. 125° 23′ (93C/3W)
At the southwest end of McClinchy Lake, at approximately 5,000 feet in elevation.

Claims: KF 1 to 24.

Access: By float-equipped plane, 24 miles south from Nimpo Lake.

Owner: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

Metals: Copper, molybdenum.

Work Done: The property was mapped topographically and geologically. Geophysical work included 5 line-miles of induced polarization, magnetometer, and seismic surveys. A geochemical survey was conducted over the claims. Approximately 370 soil and silt samples were collected for analysis. Four EX holes were diamond drilled to a total length of 600 feet. J. M. McAndrew supervised the programme.

Description: Chalcopyrite, bornite, malachite, and molybdenite occur in quartz stringers and as disseminations in a breccia pipe. Local rock types are quartz diorite, granodiorite, and fine-grained rocks rich in mafic minerals.

WELLS

AURUM MINE (No. 523, Fig. 31)

By W. G. Clarke

Location: Lat. 53° 06.2′ Long. 121° 34.8′ (93H/4E)
On the east side of Island Mountain, at Wells.

Access: Fifty-five miles by road east from Quesnel.

Owner: THE CARIBOO GOLD QUARTZ MINING COMPANY LIMITED, 617 West Pender Street, Vancouver 2.

Metal: Gold.

Work Done: Four men spent one month reopening the adit and salvaging the remainder of the hoist and transformer gear. The mine was closed again on November 22nd. Three stopes that caved through to surface on Cow Mountain were filled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 121.

McLEESE LAKE

Geology of the Granite Mountain Stock

By G. E. P. Eastwood

Introduction

The summit area of Granite Mountain is 6 to 7 air-miles north-northeast of McLeese Lake on the Cariboo highway, about 25 miles north of Williams Lake. The lower slopes extend to the valley of Cuisson Lake and Creek on the west, at about 2,800 feet elevation, and to 1 to 2 miles from the McLeese Lake–Likely road on the southeast. On the northeast, Granite Mountain is separated from other hills by a valley with a floor elevation of 3,300 to 3,500 feet. The summit area is roughly defined by the 4,400-foot contour. Below the summit area the slopes are smoothly irregular, with flats, low rounded hills and ridges, and generally moderate slopes. Creek valleys are generally less than 100 feet deep. Granite Lake lies close to the geographic centre of the mountain mass, at about 3,950 feet elevation, and separates a 4,100-foot hill to the west from the summit area to the east. The summit area is more rugged, with deep gullies separating the steep-sided hills and ridges that form the several summits. Most of the gullies contain considerable fill and are flat-floored, but two north-trending ones are rugged ravines. Bedrock is exposed only sporadically on the lower slopes, but is extensively exposed in the summit area.

Almost all of the mountain is timbered, mostly with conifers, but most of the timber is scrub. The few small swampy meadows are fringed by larger timber.

The principal access road leaves the McLeese Lake–Likely road 2 miles from the Cariboo highway and extends north along the valley of Cuisson Lake, as shown in Fig. 32. The roads up Granite Creek are normally passable for two-wheel-drive vehicles to the Sunset and Pollyanna core sheds. From the Pollyanna the summit area is reached by jeep-roads and trails along grid lines. Another jeep-road leaves the Cuisson Lake road at the sawmill and provides access to the Gunn and Keevil showings and the south part of the summit area. An old jeep-road climbs from the Likely road southwest of Big Camp Creek and its tributary and joins the one from the sawmill; several culverts were in poor condition in 1969.

Copper mineralization was discovered at least as early as 1917, when the Pollyanna shear zone was covered by the Rainbow claim. It was relocated as the Pollyanna in the 1920's, and three shafts were sunk. Shafts and open cuts were sunk about the same time in copper-bearing quartz veins north and south of the Pollyanna. The Sunset mineralized shear zone was possibly known by 1928; the adit was driven in 1957, and 10 holes were diamond drilled in 1959. Geochemical and geophysical surveys by Keevil Mining Group Limited in 1962–63 around both the Sunset and the Pollyanna showings, by Gibraltar Mines Ltd. in 1965–66 around the Sunset, and by Duval Corporation in 1965–66 around the Pollyanna, led to extensive drilling. Cominco Ltd. optioned the Gibraltar property in 1966–67 and outlined the Gibraltar West zone. Gibraltar optioned the adjoining Jan and Summit claims of Coast Silver Mines Ltd. in 1967–68 and had an induced polarization survey and 4,500 feet of diamond drilling done. Gunn Mines Ltd. trenched and diamond drilled the Gunn zone in 1967. Canex Aerial Exploration Ltd. entered into an agreement with Duval Corporation in 1967 for joint development of the Pollyanna property, and made geological, geophysical, and geochemical surveys, and drilled 17 percussion holes. Canex optioned the Gunn property in 1968, conducted induced polarization and magnetometer surveys, and drilled 10 percussion holes. Canex entered into an exploration and development agreement with Gibraltar Mines in May, 1969, optioned 36 claims adjoining the Gibraltar and Pollyanna properties from Gunn Mines in September, 1969, and optioned the Jan and Summit claims from Coast Silver in October 1969. Canex conducted an extensive diamond-drilling programme which continued into 1970, outlining the Gibraltar East, Pollyanna, and Granite Lake zones, and partly outlining the Jan-Summit zone.

Granite Mountain was included in the Quesnel area mapped at 4 miles to the inch in 1957 by H. W. Tipper of the Geological Survey of Canada. The accompanying sketch map (Fig. 32) is compiled mainly from more detailed mapping by A. Sutherland Brown in 1957 and by the writer in 1969, and from Assessment Reports on file with the Department of Mines and Petroleum Resources. The writer spent nearly three weeks in the area in August, 1969, mainly studying the rocks in the vicinity of most of the showings and traversing the more abundant exposures in the summit area.

General Geology

Granite Mountain is underlain by a body of Mesozoic granitic rocks which has been only partly delimited. The granitic rocks are intrusive into metasedimentary and metavolcanic rocks on the west and southwest, and are overlapped by extensive drift and alluvium on the north and east. Scattered outcrops of Cache Creek rocks around Ben and Skelton Lakes to the east limit the width of the granitic body to a maximum of 9 miles from west to east. The exposed and mapped length is 13.5 miles from north to south, but the total length from northwest to southeast could be 20 miles or more. The body may thus be of batholithic size, but in the present stage of knowledge is best called a stock. Flat-lying Miocene basalt caps a low ridge between the stock and the Fraser River, and a small lobe is shown by Tipper overlapping the stock southwest of the sawmill.

The stock is partly divided by a wedge or septum of metamorphic rocks extending east from the sawmill (*see* Fig. 32). These rocks are described by Sutherland Brown as metamorphosed tuffs and green schists with less volcanic breccia and limestone. J. S. Scott (in Assessment Report No. 296) traced them east-northeast to the old jeep-road along the west side of Big Camp Creek, but both Scott and the writer found only granitic rocks on this road; if the septum continues to the east it must be less than 2,000 feet wide in order to pass between the granitic outcrops. These metamorphic rocks are exposed on the west side of the stock just east of Cuisson Lake. To the northwest the contact is covered by extensive drift and alluvium in the valley of Cuisson Creek. It probably passes under the southwest part of Teakettle Lake because it is reported that a series of diamond-drill holes drilled through the ice cut granitic rocks under most of the lake, but skarn under the southwest part. The apparent trend of the contact would carry it beneath the Miocene basalts just northwest of Teakettle Lake. These metamorphic rocks are tentatively assigned to the Cache Creek Group.

The granitic rocks south of the wedge or septum are generally massive and rather less altered than to the north. They are well exposed under the high-tension transmission-line on the brow of the south-facing slope of Sheridan Creek, three-quarters of a mile southeast of the junction of the Cuisson Lake and Likely roads. The rock at this locality is a massive, coarse-grained quartz diorite, containing 70 per cent plagioclase, which is intensely altered to epidote, clinozoisite, and sericite, 17 per cent quartz, and 5 per cent fresh hornblende. Minor biotite is partly altered to chlorite. The quartz shows wavy extinction, but does not appear to have been subject to strong crushing. This south segment of the stock is not known to contain mineral deposits, and was not studied further.

North of the wedge or septum the predominant granitic rock is altered, foliated quartz diorite, with some diorite adjacent to the metamorphic rocks. Around the pond on Granite Mountain and in isolated patches elsewhere the quartz diorite is massive but still altered. Under the triangulation station on a southwest summit of Granite Mountain it is apparently intruded by a small complex plug of less altered rocks. The core is massive, medium-grained, light-coloured quartz monzonite consisting of quartz, orthoclase, epidotized plagioclase, and hornblende. This is enclosed by an inner ring of dark, massive, coarse-grained granodiorite which shows minor alteration of hornblende to chlorite. This is separated from the foliated quartz diorite by an outer ring of fine- to medium-grained, medium-coloured granodiorite

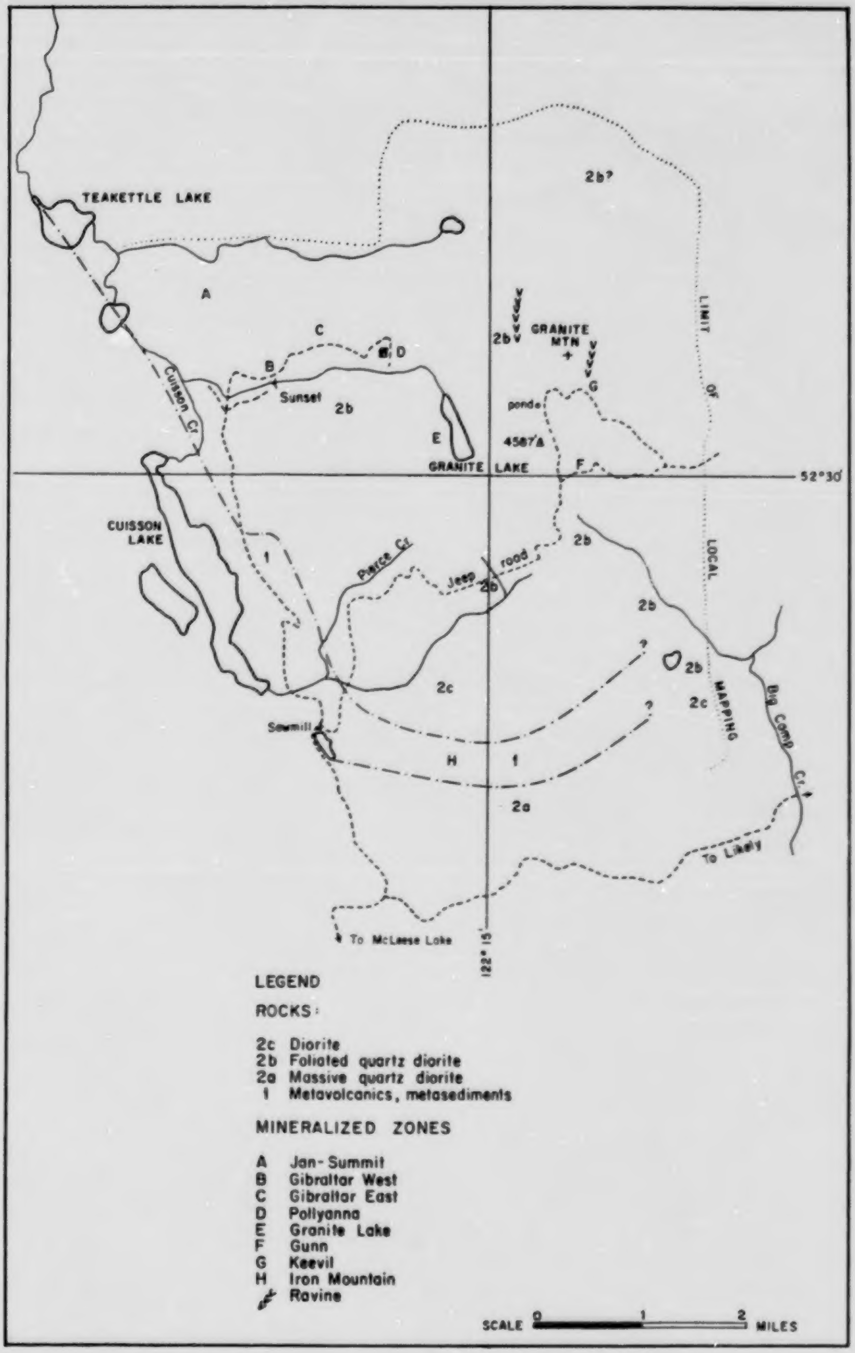

TEAKETTLE LAKE
2b?
A
2b
GRANITE MTN
C
B
D
Sunset
2b
G
ponds
Cuisson Cr
E
4587'Δ
GRANITE LAKE
F
52°30'
LIMIT OF LOCAL MAPPING
CUISSON LAKE
2b
1
Pierce Cr
Jeep road
2b
2b
?
2b
2c
?
2c
Sawmill
H
1
Big Comp Cr
2a
To Likely
To McLeese Lake
122° 15'
LEGEND
ROCKS:
2c Diorite
2b Foliated quartz diorite
2a Massive quartz diorite
1 Metavolcanics, metasediments
MINERALIZED ZONES
A Jan-Summit
B Gibraltar West
C Gibraltar East
D Pollyanna
E Granite Lake
F Gunn
G Keevil
H Iron Mountain
Ravine
SCALE 0 1 2 MILES

Figure 32. Sketch of Granite Mountain area, Cariboo district.

that is much sheared and injected by veins of pegmatitic granodiorite. Where not sheared, the medium-coloured granodiorite is massive and partly altered to epidote and chlorite. The quartz diorite is also intruded by widely scattered felsitic dykes, commonly 3 to 10 feet wide. These dykes are quartz porphyry and quartz-feldspar porphyry of variable composition, alteration, and deformation.

The typical quartz diorite contains 50 to 70 per cent plagioclase, 15 to 25 per cent quartz, and 5 to 15 per cent chlorite, with the plagioclase more than half altered to epidote, clinozoisite, and minor muscovite or sericite. In places a little interstitial perthite is present, and the rock locally grades to granodiorite. Biotite was nowhere seen, although it has been reported from about 2 miles north of the main summit of Granite Mountain. Where the rock is only weakly foliated, much of the chlorite can be seen to be pseudomorphous after hornblende. The plagioclase crystals are commonly coarse and, owing to their abundance, impart a coarse-grained texture to the rock. Locally, the plagioclase crystals are smaller and the quartz diorite is medium grained; no pattern of these medium-grained patches was evident during the course of mapping.

Locally, the quartz diorite develops three variants, referred to as the porphyritic, quartz-eye, and coarse-mafic facies. The porphyritic facies was cut below 180 feet in diamond-drill hole 66 on the Pollyanna property. It is a light-coloured, massive rock, less altered than the common quartz diorite. It consists of large crystals and groups of crystals of plagioclase and a few large crystals of quartz in a groundmass of medium- to fine-grained quartz, plagioclase, muscovite, and minor clinozoisite. The contact appears to be gradational.

The quartz-eye facies was cut in several diamond-drill holes in the Gibraltar East zone, and in less accentuated form occurs on the hill west of Granite Lake. In the common quartz diorite, the quartz grains are much finer than the plagioclase, but in the quartz-eye facies they are coarser. The total quartz content is higher, around 40 per cent. In other respects the quartz-eye rock resembles common quartz diorite. The contact is a fault in some drill-holes and appears gradational in others. The pattern of intersections indicates that the contact dips steeply west and that the quartz-eye facies should sub-crop beneath overburden near the Gibraltar-Pollyanna boundary.

The coarse-mafic facies is most strikingly developed about 500 feet south of the Sunset adit, but appears sporadically through the stock. In common quartz diorite the chlorite books are smaller than the plagioclase crystals, but in the coarse-mafic facies they are as large or larger, though the total chlorite content is about the same. The coarse-mafic facies appears to be a true variant, freely intergrading with the common quartz diorite and presumably formed at the same time. The porphyritic and quartz-eye facies may be slightly younger than the common quartz diorite, having intruded the quartz diorite while it was still mushy.

Structural Geology

The stock north of the wedge or septum has on the whole been intensely deformed. A gneissic secondary foliation has been superimposed on a weak to moderate primary foliation, and locally intensifies to become sub-parallel northwest-striking shear zones which divide the stock into almond-shaped blocks. The laminæ in the shear zones have been locally dragfolded, and the pattern of dips of the secondary foliation suggests broad, open folding. The stock has been further broken by gouge zones and probably by late fracture zones.

The primary and secondary foliations are normally parallel in a single hand specimen, but in a few places they can be seen to cross. The primary foliation is

Plate VIIIA.—Dragfolded quartz-muscovite schist from the Sunset shear zone (×1).

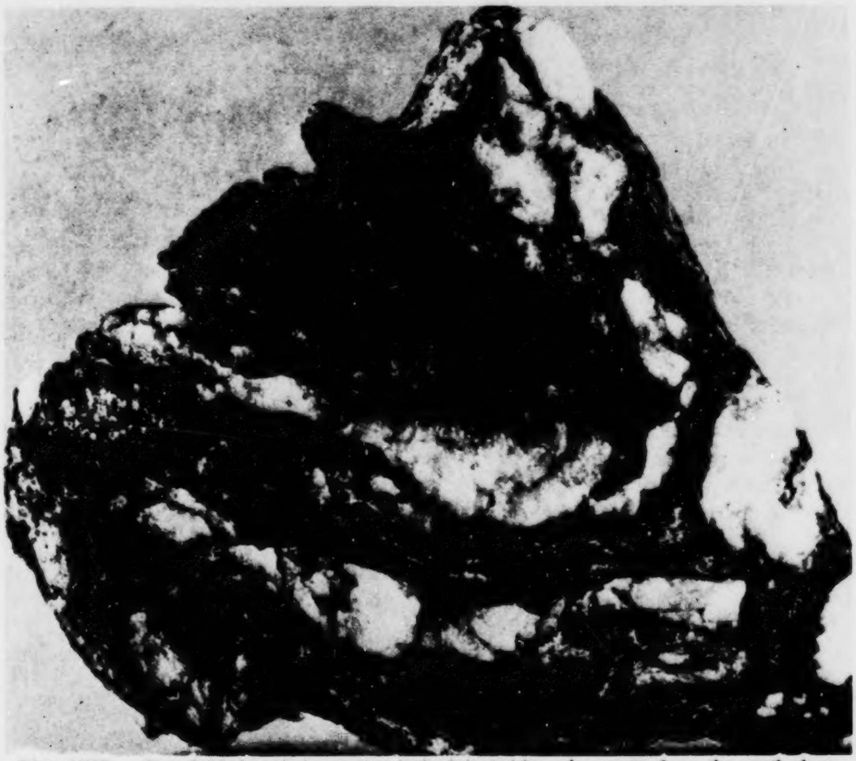


Plate VIIIB.—Dragfolded gneissic quartz diorite injected by vein quartz, from the south slope of the summit area (×1¼).

shown by parallel, non-coplanar, undeformed books of chlorite, and in some outcrops by a tendency to parallelism of the plagioclase plates. Secondary foliation shows up in the development of parting surfaces and in the compression of the chlorite books and their smearing along these surfaces. Where the secondary deformation is weak, the parting surfaces curve around the feldspar crystals and extend for only an inch or so. With stronger deformation the parting surfaces become planar and extensive, and the rock develops a gneissic appearance. Where the pervasive deformation is intense, seams of muscovite develop along the parting planes, and if medium or coarse quartz grains are present, augen and flaser structure develop.

Quartz grains of all sizes appear to give a fairly reliable indication of the intensity of pervasive deformation. Where deformation is slight, the quartz is clear and glassy in hand specimen and shows only wavy extinction under the microscope. With increased deformation the quartz is opalescent in blue and grey tones and shows mosaic extinction, indicating incipient brecciation. With a further increase in deformation the quartz is again glassy but saccharoidal, indicating the thorough crushing of the grains.

The primary and secondary foliations are generally parallel, though crossed in a few outcrops, and generally strike northwest. However, they strike approximately west where the jeep-road crosses the 15-minute meridian and again southeast of the Sunset adit. Additional observations would be required to determine whether these are local variations or represent a definite trend in that part of the area. Dips are highly variable, and some detailed mapping by Duval Corporation on the Pollyanna indicates that the foliation is thrown into broad, open folds.

The shear zones are identified by an accentuation of the parting planes and a decrease of the distance between them. Muscovite forms along the parting planes, and the core of some shear zones is altered to quartz-muscovite schist. In two places in the summit area of Granite Mountain, however, the quartz diorite has gone to a lustrous, crenulated grey schist showing two sizes of crenulations but showing little alteration of the minerals. Evidently something besides intense shearing was necessary to produce the quartz-muscovite schist, probably a source of water. The quartz-muscovite schist laminæ are planar to wavy, rather than crenulated, but in at least two shear zones they are dragfolded (*see* Plate VIII). The shear zones range in width from 1 to more than 100 feet. Almost all strike in the northwest quadrant, sub-parallel to the foliation, and most dip steeply, both northeast and southwest. The folia in the shear zones are commonly strictly parallel to the general foliation and lie at a small angle to the shear zone. At the Pollyanna shafts the contact between sheared quartz diorite and quartz-muscovite schist strikes northeast, but the schistosity in the schist strikes northwest. This parallelism of the schistosity and near-parallelism of most of the shear zones with the general foliation in the quartz diorite, together with the progressive development of the schistosity from the foliation, would suggest that the shear zones resulted from local intensification of the same shearing forces that produced the pervasive deformation.

Gouge zones are not naturally exposed. One is exposed in trenches at the bend of the jeep-road close to the east limit of mapping, just above the 30-minute parallel. It strikes north 35 degrees west; the dip is not apparent. The zone of plastic gouge is about 30 feet wide and is flanked by chlorite-muscovite schist with a schistosity attitude of north 70 degrees west, 65 degrees south. The schist grades to moderately foliated quartz diorite about 150 feet northeast of the gouge zone. This apparent association of schist and gouge is puzzling, for clay gouge would not be expected under conditions conducive to formation of muscovite and chlorite. Possibly the gouge-producing movement was later superimposed on a shear zone. In the Sunset adit, three narrow gouge zones strike northeast and offset the Sunset shear zone both left and right, and are clearly younger than the shearing.

Two deep ravines on the north slope of Granite Mountain may mark late fracture zones eroded by glacial meltwater. They do not appear to be eroded from shear zones, for the outcrop in the ravine walls and the debris along the floor show neither shearing nor the development of muscovite. Also, no known shear or gouge zone has been so deeply eroded. On the other hand, the rocks in the ravine walls have a marked clay odour, suggesting some low-temperature, and presumably late, alteration.

Mineralization

Pyrite, chalcopyrite, malachite, and molybdenite are widely but generally sparsely distributed through the stock north of the wedge of metamorphic rocks. They are somewhat concentrated in certain areas referred to as mineralized zones, and more concentrated in some shear zones. Chalcopyrite, malachite, and molybdenite also occur in quartz veins.

Quartz veins are common but not uniformly distributed. They are larger and more abundant both north and south of the Pollyanna mineralized zone than within the zone, and they are relatively scarce in the summit area northeast of the pond. Many follow shear zones and strike northwesterly, but many others which do not, have a variety of strikes. They range in width from less than an inch to 3 feet, except for one large vein near the summit of the hill west of Granite Lake, which is at least 10 feet wide at its widest. This vein is traceable for 180 feet in intermittent exposure along a strike of north 45 degrees west, and dips 65 degrees northeast. The smaller veins are traceable for much shorter distances. At least some of the veins along shear zones are not single veins but rather series of lenses, as in the Sunset shear zone. Most of the quartz veins are apparently barren, but some, such as the large one, contain pockets of chalcopyrite and malachite, others contain pockets and veinlets of molybdenite, and a few contain both chalcopyrite and molybdenite. None of the veins is large enough or of high enough grade to be mined individually, but the mineralized veins that occur in the large mineralized zones contribute to the over-all grade.

The Sunset shear zone strikes north 35 degrees west and dips 50 degrees to 70 degrees southwest. It consists of a central vein zone, 2 to 5 feet thick, flanked by quartz-muscovite schist which grades into foliated quartz diorite. The vein zone comprises lenses of quartz and streaks and bands of pyrite and chalcopyrite in the quartz-muscovite schist. The sulphide streaks lie along the schistosity, see Plate IXA, which in part is flatter than the over-all vein zone. Most of the individual streaks are only a few feet long, but they overlap along strike, and mineralization is continuous along the zone.

The original Pollyanna showing comprises quartz lenses and copper minerals in quartz-muscovite schist. Two shafts and an open cut were sunk on the most concentrated mineralization, and line up at north 55 degrees east. Scattered small exposures of foliated quartz diorite close to the open cut and northeast shaft indicate that the line of workings is approximately the northwest limit of the schist. Stripping to the southeast of this line exposes 30 feet of quartz-muscovite schist, which grades to a further 30 feet of bleached, schistose quartz diorite. A hand trench 100 feet northeast of this stripping encountered rubble of vein quartz and quartz-muscovite schist. It seems clear that the schist zone strikes about north 55 degrees east. However, the schistosity within it strikes north 10 degrees west and dips 10 degrees east, and the foliation in the quartz diorite northwest of the open cut strikes north 45 degrees west and dips 65 degrees northeast. The copper minerals are malachite, less

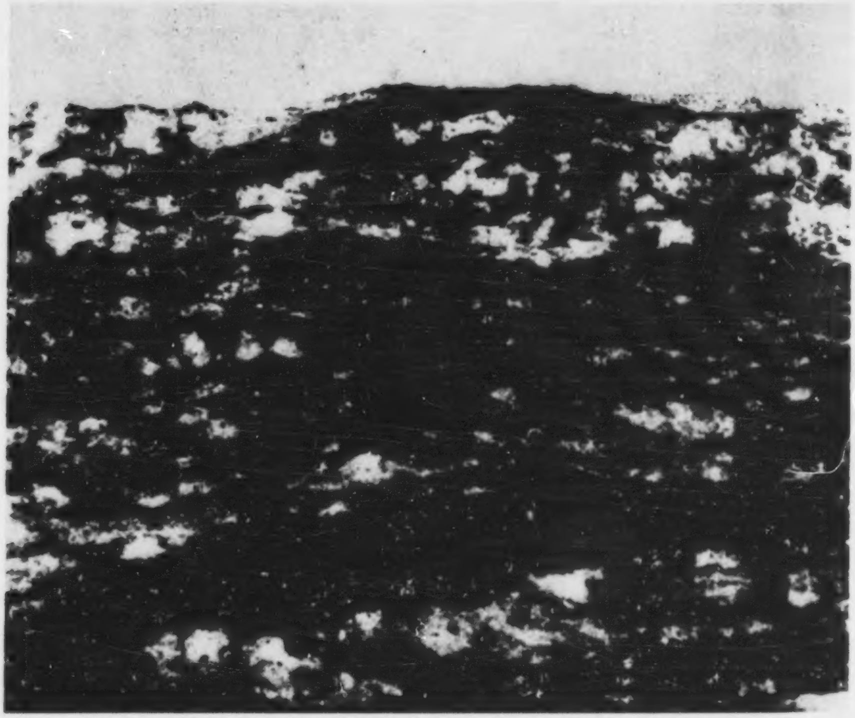


Plate IXA.—Pyrite disseminated through gneissic quartz diorite adjacent to Sunset shear zone (×1½).

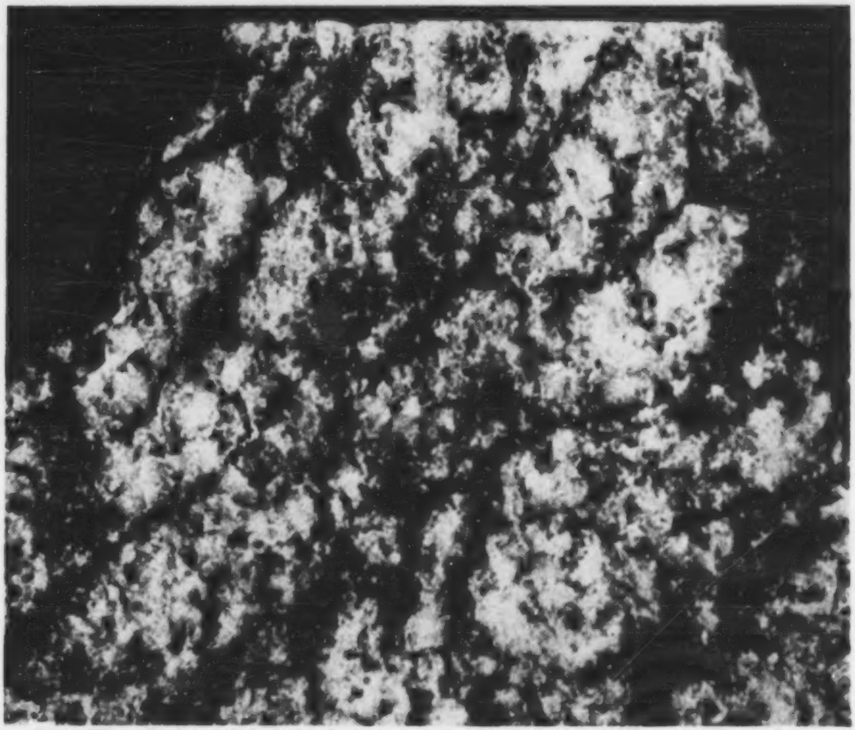


Plate IXB.—Pyrite and chalcopyrite in transecting fractures in typical quartz diorite from Gibraltar East zone. Weak foliation is nearly perpendicular to axis of core (×2).

azurite, minor chrysocolla and chalcopyrite, and traces of cuprite. They occur both in the quartz lenses and along the schistosity. While they are more concentrated along the line of the three workings, malachite is fairly common all over the stripped area to the southeast. A third shaft, to the northeast, apparently did not reach bedrock. A fourth shaft, mentioned in the 1950 Annual Report, was not found; it may have been filled and covered by recent bulldozing.

About 500 feet northwest of the original showing, stripping beside the road exposes a shear zone in the northwest part and some mineralization in the southeast part. The shear zone is 2 to 5 feet wide, at least 30 feet long, it strikes north 40 degrees west, and dips 75 degrees southwest. A little vein quartz occurs in it, but no sulphides are visible. However, the mineralized area is almost on strike. The mineralization consists of considerable malachite and some rusty sulphides disseminated in strongly foliated and somewhat fissile quartz diorite. The shear zone and mineralization project toward the original showing.

Trenches 700 to 1,200 feet north of the road expose sheared quartz diorite grading eastward to quartz-muscovite schist. This schist strikes north 10 degrees east and also projects toward the original Pollyanna showing. It may well represent the master fault in the Pollyanna zone, regardless of the discordant attitudes at the original showing.

Assays of various samples taken from the Sunset and Pollyanna shear zone deposits indicate that they are of ore grade, but the inferred tonnage is small. The economic potential of the stock lies mainly in the large, low-grade mineralized zones. Eight zones are shown on Figure 32. The Iron Mountain showings are in the metamorphic rocks and were described by Sutherland Brown in the 1957 Annual Report; they are not discussed further. For four other zones the following reserve estimates were released by the owners early in 1970:—

Zone	Tons	Copper (Per Cent)	Molybdenite (Per Cent)
Gibraltar West	1,900,000	0.49	....
Gibraltar East—Gibraltar ground	73,600,000	0.42	0.013
Gibraltar East—Pollyanna ground	8,500,000	0.35	....
Pollyanna	61,000,000	0.36	....
Granite Lake	36,000,000	0.40	....
Total	181,000,000	0.39	....

The Jan-Summit zone was being drilled by Canex Aerial Exploration Ltd. at the end of 1969, and only a few preliminary figures had been released. It was not visited.

The Gibraltar West zone appears to centre on the Sunset shear zone, and presumably includes mineralization observed extending out from it along the foliation.

The Gibraltar East zone is covered by extensive overburden. Drill core shows pyrite and chalcopyrite in part strung out along the foliation, but more commonly occurring along fractures oblique to the foliation, with pyrite about three times as abundant as chalcopyrite (*see* Plate IXB). Chalcopyrite and, less commonly, molybdenite occur as pockets and seams in some of the narrow quartz veins. Some black chalcocite occurs interstitial to the rock minerals within about 200 feet of the surface. The mineralization appears to decrease with depth, and the quartz-eye facies is little mineralized.

The Pollyanna and Granite Lake cores were not examined. As far as is known, the mineralization does not differ significantly from that in the Gibraltar East zone.

The Gunn zone is exposed by stripping and trenching in two areas extending 1,700 feet northeast from the southwest fork of the jeep-road. At the fork, a rusty sheeting on the north side of the road strikes north 20 degrees west and dips 70 degrees east, and the rock on the south side of the road is a rusty stockwork with a prominent fracture direction striking north 70 degrees west and vertical. The limonite probably resulted from oxidation of pyrite coating the sheeting or fracture surfaces. Variable malachite extends northeast along the south branch of the jeep-road for about 200 feet, but does not extend more than 50 feet northwest of the road. This malachite zone crosses a shear zone striking north 55 degrees west and dipping 75 degrees northeast, which is composite and consists of almond-shaped lenses of relatively unsheared rock enclosed by anastomosing shear zones a few feet wide. Apparently barren quartz and quartz-chlorite veins are scattered through the zone, mostly in the more intensely sheared rock. It is reported (Assessment Report No. 1641) that two percussion holes drilled into this part of the zone averaged 0.20 per cent copper. The second area of mineralization extends north from the camp on the jeep-road, and is represented approximately by the letter " F " on Figure 32. A well-mineralized band extends due west for about 200 feet parallel with the foliation in strongly and closely cleaved quartz diorite. It is deflected by a mass of augen gneiss and flanks a quartz vein striking north 75 degrees west for a further 250 feet. The easterly part of the band is at least 50 feet wide, but it tapers to a point alongside the quartz vein. The mineralization consists of malachite and less azurite plastered on north-striking talcose slip surfaces and disseminated through the rock. The vein is 3 to 8 inches wide, and is faulted a few feet to the right in several places. It is well mineralized with molybdenite, except at the west end where it contains a little chalcopyrite and chlorite instead. It dips 65 degrees south at the east end, but is flat in the westernmost exposure. Malachite is sparsely scattered through the foliated quartz diorite to the south and east of the well-mineralized band. About 120 feet north of the west end of the quartz vein a trench exposes schist rubble containing fragments of chalcopyrite- and molybdenite-bearing quartz. Seven holes were diamond drilled in this area in 1967, but the results are not known.

The Keevil zone extends southeasterly from the head of the easterly ravine. There, chalcopyrite and malachite are disseminated in and malachite occurs as coatings on joint surfaces in sheared quartz diorite. Most of the joints strike north 85 degrees east and dip 60 degrees south. Some contain quartz veins. One quartz blowout, 1 to 4 feet wide and not more than 20 feet long, contains ferrimolybdite and small seams of molybdenite. To the southeast the quartz diorite is streaked with almost parallel shear zones from 2 to 20 feet wide and injected by numerous quartz veins ranging in width from a fraction of an inch to about 18 inches. Most of the conspicuous veins are 5 to 10 inches wide and are in or close to shear zones. Four contain visible molybdenite, and one of these contains also pyrite, chalcopyrite, and malachite. Malachite and chalcopyrite are also disseminated in sheared quartz diorite adjacent to the veins. Most of the quartz veins appear barren, but a sample consisting of chips from several places along one such vein contained spectrochemically measurable amounts of molybdenum and copper. C. M. Armstrong (in Assessment Report No. 1596) found visible malachite over a width of 300 to 350 feet and a total length of 2,600 feet. Five holes were diamond drilled into the zone in 1967, but the results are not known.

REFERENCES: *Geol. Surv., Canada,* Map 12-59; *Minister of Mines, B.C.,* Ann. Repts., 1957, p. 14, 1966, p. 121, 1967, p. 121; Assessment Reports Nos. 296, 597, 1596, and 1641.

JAN, SUMMIT (No. 524, Fig. 31)

Location: Lat. 52° 31.5′ Long. 122° 19′ (93B/9W)

Claims: JAN SUMMIT, 13 claims.

Access: From Cariboo highway at McLeese Lake, 2 miles along road to Likely, then north past Cuisson Lake and along Cuisson Creek.

Owner: Coast Silver Mines Ltd.

Operator: GIBRALTAR MINES LTD., 807, 509 Richards Street, Vancouver 2.

Metal: Copper.

Work Done: Early in 1969 three drill-holes, aggregating 2,853 feet, were diamond drilled.

Reference: Assessment Report No. 1796.

SUNSET (No. 525, Fig. 31)

Location: Lat. 52° 30.8′–31.3′ Long. 122° 18′–17.2′ (93B/9W) On Granite Creek.

Claims: PAN, ZEPHYR, AL, IT, EV, BUD, DOT, VE, VAL.

Access: From Cariboo highway at McLeese Lake, 2 miles along road to Likely; thence north along Cuisson Lake road about 6 miles to Granite Creek and then up mine road beside the creek.

Owner: Gibraltar Mines Ltd.

Operators: GIBRALTAR MINES LTD., 807, 509 Richards Street, Vancouver 2 (before May); CANEX AERIAL EXPLORATION LTD., 800 Burrard Building, 1030 West Georgia Street, Vancouver 5 (after May); S. J. Tennant, geologist.

Metals: Copper, molybdenum.

Work Done: Fourteen holes aggregating 5,310 feet were diamond drilled in Gibraltar West zone and five holes aggregating 6,622 feet were diamond drilled in Gibraltar East zone. Ninety-one NQ holes with an aggregate length of 54,215 feet were diamond drilled and four 5⅞-inch diameter rotary holes with an aggregate length of 1,130 feet were drilled, all in the parts of the Gibraltar East and Granite Lake zones on Gibraltar-owned claims. Three miles of road was relocated or built to drillsite.

POLLYANNA (No. 526, Fig. 31)

Location: Lat. 52° 31.0′ Long. 122° 16.3′ (93B/9W)

Claims: GG.

Access: From McLeese Lake–Likely road along Cuisson Lake road to Granite Creek; thence by mine road up beside Granite Creek through Sunset property.

Owners: Duval Corporation of Canada and Canex Aerial Exploration Ltd.

Operator: CANEX AERIAL EXPLORATION LTD., 800 Burrard Building, 1030 West Georgia Street, Vancouver 5; S. J. Tennant, geologist.

Metals: Copper, molybdenum.

Work Done: Diamond drilling, 44,105 feet of NQ size in 81 holes; rotary drilling, 200 feet of 5⅞-inch diameter in two holes. This work was done on the Pollyanna zone and that part of the Gibraltar East zone lying within the Pollyanna property.

HD (No. 527, Fig. 31)

Location: Lat. 52° 30.2′ Long. 122° 15.7′ (93B/9W)
South and southeast of Granite Lake.

Claims: HD, CAROL, FFE, FI, HA, HAS.

Access: From McLeese Lake–Likely road along Cuisson Lake road to Granite Creek; thence by mine road up beside Granite Creek through Sunset property to vicinity of Pollyanna shafts; thence by jeep-road and cat-road south beside Granite Lake.

Owner: Gunn Mines Ltd.

Operator: CANEX AERIAL EXPLORATION LTD., 800 Burrard Building, 1030 West Georgia Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Diamond drilling, 7,546 feet of NQ size in 14 holes was done on the part of the Granite Lake zone lying within the Gunn Mines property.

References: *Minister of Mines, B.C.,* Ann. Repts., 1967, p. 121; 1968, p. 151; Assessment Reports Nos. 1641, 1680A, and 1680B.

BURG (No. 514, Fig. 31)

Location: Lat. 52° 35′–38.5′ Long. 122° 10′–14′ (93B/9E)
Thirteen and one-half miles north-northeast of McLeese Lake and 4 miles west-northwest of Ben Lake at about 3,500 feet elevation.

Claims: BURG 1 to 104.

Access: By foot or helicopter, 4 miles from Ben Lake, which can be reached by 20 miles of road from McLeese Lake.

Owner: PYRAMID MINING CO. LTD., 604, 890 West Pender Street, Vancouver 1.

Work Done: A reconnaissance geochemical survey. L. B. Gatenby, in charge.

BEN (No. 513, Fig. 31)

Location: Lat. 52° 34.5′ Long. 122° 10′ (93B/9E)
Twelve miles north-northeast of McLeese Lake and 3 miles west of Ben Lake, at approximately 3,500 feet elevation.

Claims: BEN 49 to 104.

Access: By road, 18 miles from McLeese Lake.

Owner: CROYDON MINES LTD., 1177 West Hastings Street, Vancouver 1.

Work Done: Geological and geochemical soil surveys. J. W. Hogan, in charge.

AXEL, MAX, JIB (No. 511, Fig. 31)

Location: Lat. 52° 32′ Long. 122° 20.5′ (93B/9W)
Surrounding Teakettle Lake, 5 miles west-northwest of Granite Mountain.

Claims: AXEL, MAX, JIB, HEM, PET, DEER, MOOSE, 59 in all.

Access: By road, 5 miles from Marguerite, which is on Highway No. 97.

Owners: Plateau Metals Ltd. and estate of Christopher Riley.

Operator: ISO EXPLORATIONS LTD., 1307, 1030 West Georgia Street, Vancouver 5.

Work Done: Eleven line-miles of induced polarization survey over the central claims.

References: Assessment Reports Nos. 1613 and 2149.

BJ, JP, BARB (No. 515, Fig. 31)

Location: Lat. 52° 23.5′–25.5′ Long. 122° 12.5′–15′ (93B/8E)
Three miles east of McLeese Lake, at approximately 2,000 feet elevation.

Claims: BJ 17, 19, 21, and 33 to 66; JP 6, 17, and 18; BARB 1 to 12; VIV 1 to 10; CLAUDE 1 to 8 Fractions; a total of 70.

Access: By road, 3 miles from McLeese Lake.

Owner: MIDNIGHT CONSOLIDATED MINES LTD., 1334 Yates Street, Victoria.

Metals: Copper, gold.

Work Done: An electromagnetic survey was made on the BARB, BJ, and CLAUDE Fraction claims, 4 miles of road was constructed on the VIV claims, and three holes, total length 1,000 feet, were diamond drilled. R. Reese, in charge.

References: Assessment Reports Nos. 1179 and 1756.

Description: Traces of copper and gold occur in volcanic rocks near granodiorite.

TYEE (No. 502, Fig. 31)

Location: Lat. 52° 23′–27′ Long. 122° 03′–11′ (93B/8E)
Northwest side of Tyee Lake, at approximately 3,200 feet.

Claims: TYEE, VISTA, LELA, REX, approximately 250 in all.

Access: About 15 miles from McLeese Lake by road.

Owner: TYEE LAKE RESOURCES LTD., 312, 510 West Hastings Street, Vancouver 2.

Work Done: Part of the claims was surveyed by chain and compass and surface workings were mapped. Geological mapping was conducted on a scale of 1 inch equals 1,320 feet. Sixty line-miles of magnetometer and 50 line-miles of induced polarization surveys were done on various claims. Some orientation and reconnaissance geochemical work was carried out on the VISTA and REX claims and several outcrops were blasted. C. A. Lammle was in charge of the work.

Description: Cache Creek phyllites, andesites, and limestone are intruded by quartz diorite and are, in part, covered by Tertiary rocks. The property is being investigated as a possible copper deposit.

LIKELY

POLLEY, RED ROCK (No. 505, Fig. 31)

Location: Lat. 52° 35′–37.5′ Long. 121° 33.5′–39′ (93A/12E)
Encompassing and to the southwest of Likely.

Claims: One hundred and one, comprising the POLLEY, RED ROCK, APRIL, MAY, PINE, FIR, RUSS, SHIRLEY, and TIKI groups.

Access: By road, 52 miles north from 150 Mile House.

Owner: ARDO MINES LTD., 630, 890 West Pender Street, Vancouver 1.

Metals: Copper, gold.

Work Done: The surface workings were mapped and a geological survey was carried out on the RED ROCK, FIR, and PINE claims. A geochemical survey and 15 line-miles of induced polarization survey were conducted over the RED ROCK, FIR, PINE, and SHIRLEY claims. Five BQ holes totalling 2,450 feet were diamond drilled. The work was supervised by S. V. Ramani.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 125; 1967, p. 122; Assessment Report No. 2148.

Description: Chalcopyrite, azurite, malachite, and native copper are disseminated in brecciated monzonite in a contact metamorphic environment.

CARIBOO-BELL (No. 501, Fig. 31)

Location: Lat. 52° 33.5′ Long. 121° 38.5′ (93A/12E)

Between Bootjack and Polley Lakes, 5 miles southwest of Likely, at 3,500 to 4,100 feet elevation.

Claims: BOOTJACK, BJ, GREEN, RED, BLUE, 258 in all.

Access: By road, 54 miles from Williams Lake.

Owner: CARIBOO-BELL COPPER MINES LIMITED, 300, 999 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: A topographic map of the property was prepared.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 126–131; 1967, pp. 122, 123; 1968, p. 152; Assessment Report No. 646.

Description: *See* Minister of Mines and Petroleum Resources Annual Report for 1966, pages 126 to 131.

MARINER C (No. 522, Fig. 31)

Location: Lat. 52° 35′ Long. 121° 28′ (93A/11W)

Across the west side of Spanish Mountain between Cedar Creek and the west end of Spanish Lake, 4 miles southeast of Likely.

Claims: MARINER C 1 to 25.

Access: By road from Likely.

Owner: SPANNALLEN MINING LTD., 8939 Glenwood Street, Chilliwack.

Metals: Gold, silver, copper, lead.

Work Done: Geology mapped, some stripping and trenching done by bulldozer, and one-half mile of road built.

MIOCENE

WIGGINS CREEK (No. 500, Fig. 31)

Location: Lat. 52° 17′ Long. 121° 43′ (93A/5E)

At Miocene at approximately 3,500 feet elevation, 15 miles northeast of 150 Mile House.

Claims: WIGGINS CREEK, LUCKY DAWN, HEARTS CONTENT, and others totalling 30.

Access: By gravel road, approximately 20 miles from 150 Mile House.

Operator: GRANDEUR MINES LTD., 534, 789 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: Twenty-one line-miles of geochemical surveying covering the WIGGINS CREEK, LUCKY DAWN, and HEARTS CONTENT claims; R. H. D. Philp, supervisor.

Reference: Assessment Report No. 2014.

Description: Chalcopyrite and malachite occur in shears and fractures in trachyte porphyry.

HORSEFLY

HO (No. 508, Fig. 31)

LOCATION: Lat. 52° 18′ Long. 121° 20′ (93A/6W)
Four miles southeast of Horsefly, on the Horsefly River.

CLAIMS: HO 1 to 84.

ACCESS: By road, 5 miles from Horsefly.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Copper.

WORK DONE: A geological survey and 4 line-miles of induced polarization survey were conducted over the claims. Approximately 2,450 soil and silt samples were collected and analysed and 2 miles of road was constructed on and south of the HO 77 claim. J. W. McAndrew, supervisor.

FLY (No. 509, Fig. 31)

LOCATION: Lat. 52° 21′ Long. 121° 15′ (93A/6E, 6W)
One and one-half miles east of Lemon Lake, 2½ miles south of Horsefly Lake.

CLAIMS: FLY 1 to 40.

ACCESS: Eight miles by road from Horsefly.

OWNER: F. Critchlow.

OPERATOR: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: The FLY 1 to 8 claims were mapped geologically. Twenty trenches totalling 3,000 feet in length were bulldozed and 22 holes totalling 3,700 feet were percussion drilled. W. St. C. Dunn, supervisor.

CS, EN (No. 510, Fig. 31)

LOCATION: Lat. 52° 18′–21′ Long. 120° 36′–42′ (93A/7E)
Eureka Peak, 32 miles east of Horsefly.

CLAIMS: CS, EN, 92 in all.

ACCESS: By helicopter or, conditions permitting, by a road constructed to the property from near the end of the main logging-road on Horsefly River.

OWNER: J. Carson.

OPERATOR: AMAX EXPLORATION, INC., 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: A geochemical silt, soil, water, and rock-chip survey.

REFERENCE: Assessment Report No. 2137.

MAG (No. 520, Fig. 31)

LOCATION: Lat. 52° 10′ Long. 121° 03′ (93A/3E)
Around small lake 3 miles north of Moffat Lakes, 20 miles southeast of Horsefly.

CLAIMS: MAG 1 to 24.

ACCESS: By helicopter, 40 miles from Williams Lake.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

WORK DONE: Magnetometer, electromagnetic, and geochemical soil surveys were run over the whole claim group.

REFERENCES: Assessment Report No. 1836.

BIG TIMOTHY MOUNTAIN

BOSS MOUNTAIN MINE (No. 516, Fig. 31)

By E. Sadar.

LOCATION: Lat. 52° 05.9′ Long. 120° 54.4′ (93A/2W)
At head of Molybdenite Creek, on the east slope of Big Timothy (Takomkane) Mountain, about 6 miles west of Hendrix Lake.

CLAIMS: Ninety-four claims, including 11 Crown grants.

ACCESS: By road from 100 Mile House via Forest Grove, for 57 miles.

OWNER: BRYNNOR MINES LIMITED (Boss Mountain Division), Hendrix Lake; L. R. Redford, manager; A. M. Cormie, mine superintendent; J. W. Austen, mill superintendent.

METAL: Molybdenum (*see* Table 12 for production).

WORK DONE:

	Feet
Drifts and crosscuts	844
Raises	1,460
Subdrifts	2,348
Shaft sinking	885
Diamond drilling	5,800
Long blast-hole drilling	407,670
	Cubic Feet
Shaft stations and pockets	93,000

Approximately 1,800 feet of 250 M.C.M. 3-kilovolt armoured cable was installed between the 1,000-kva. substation and the main pump level. Fifteen hundred feet of 10-conductor, No. 12 A.W.G. armoured signal cable was installed from the hoist room to the loading-pocket. Two pumps driven by a 100-horsepower and a 50-horsepower motor respectively were installed temporarily at the loading-pocket pump station. Two 5-horsepower flygt pumps were installed, one on the main level and one at the shaft bottom. The 100-horsepower fan from the surface at 56 raise was moved to 5P56 raise underground. New heavier track was installed on the main haulage. In the crushing plant the 4½-foot short-head crusher was replaced with a 5½-foot short-head crusher driven by a 200-horsepower motor. A 600-kva. 2,400-volt capacitor bank was installed in the main powerhouse.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 152.

DESCRIPTION: An 885-foot internal production shaft was completed and will open up ore below the shaft level for development and mining.

LAC LA HACHE

SS, JE, JT (No. 504, Fig. 31)

LOCATION: Lat. 52° 00′ Long. 121° 20′ (92P/14W, 93A/3W)
On the northeast side of Spout Lake.

CLAIMS: SS 1 to 21, 23, 25, 27 to 40; JT 1 to 28; JE 1 to 4, 6.

ACCESS: By secondary road, 25 miles northeasterly from Lac la Hache.

OWNER: MONTE CRISTO MINES LIMITED, 214, 475 Howe Street, Vancouver 1.

METAL: Copper.

WORK DONE: A magnetometer survey covering SS 1 to 16, 21 to 28, and the JE claims, and a geochemical survey on several SS claims. J. A. Mitchell, in charge.

REFERENCES: Assessment Reports Nos. 1704 and 2074.

DESCRIPTION: Chalcopyrite, bornite, magnetite, pyrite, and malachite are associated with sheared and altered zones in granodiorite.

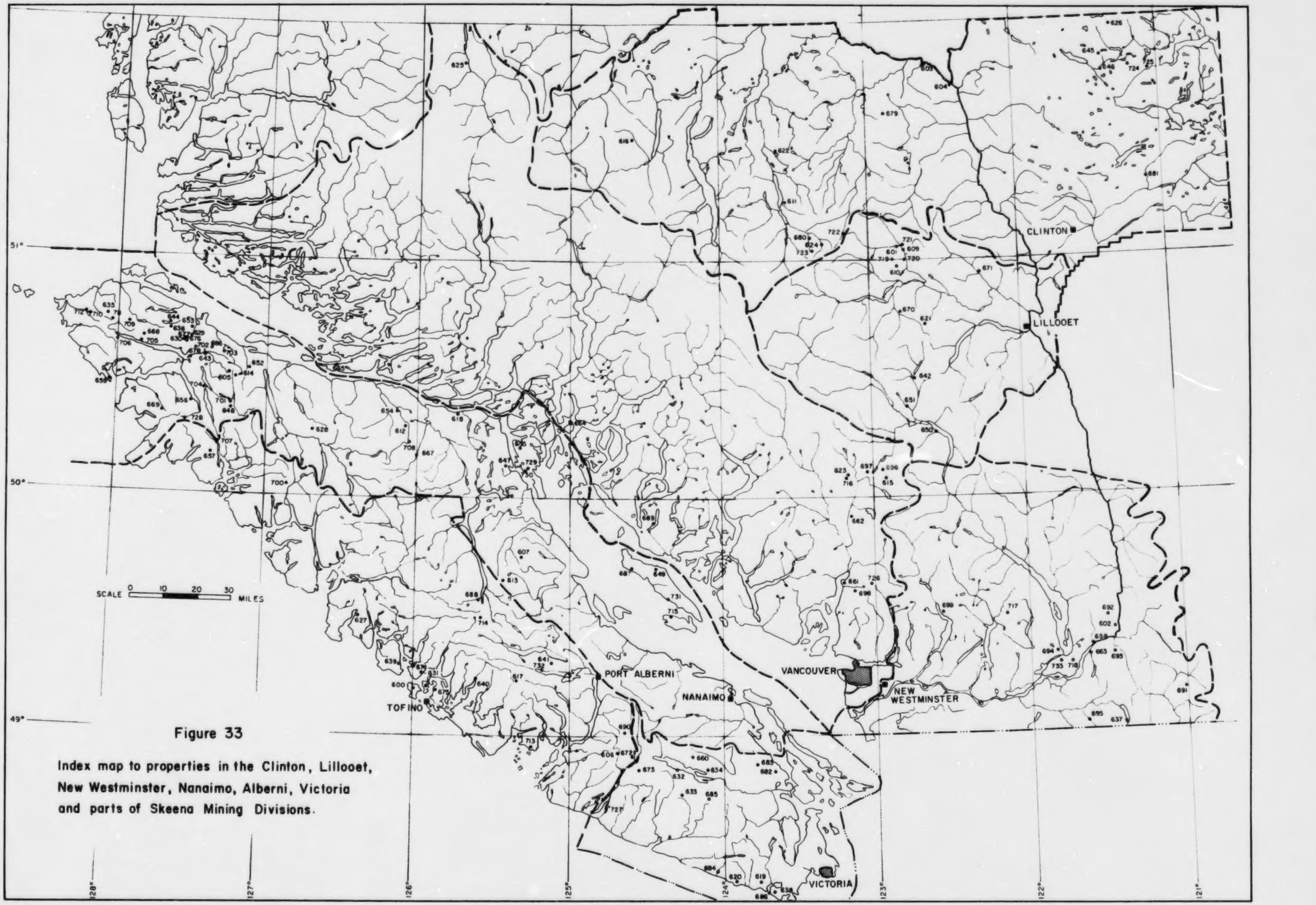

CLINTON
LILLOOET
VANCOUVER
NEW WESTMINSTER
NANAIMO
PORT ALBERNI
TOFINO
VICTORIA
SCALE 0 10 20 30 MILES
51°
50°
49°
128°
127°
126°
125°
124°
123°
122°
121°

Figure 33

Index map to properties in the Clinton, Lillooet, New Westminster, Nanaimo, Alberni, Victoria and parts of Skeena Mining Divisions.

KEY TO PROPERTIES ON INDEX MAP, FIGURE 33

600 MN, page 217.
601 SILVERQUICK MINE, page 186.
602 BEA, GIANT, SWEDE, page 197.
603 FARWELL, page 182.
604 SILVER, KLEIV, MARIE, page 182.
605 ED, page 209.
606 NAT, NIT, LX, page 221.
607 MT. WASHINGTON COPPER, page 212.
609 TUNGSTEN QUEEN, page 186.
610 CHARLOTTE, ANN, page 186.
611 BANNER, page 180.
612 BOYES, page 210.
613 FAITH, RIM, page 213.
614 MIKE, BOB, page 209.
615 LONDON, AXE, page 192.
616 BAT, page 180.
617 VENT, page 219.
618 BEAR, page 211.
619 OTTER, page 225.
620 KIRBY, page 225.
621 CHALCO, page 187.
622 BB, page 180.
623 CALLAGHAN, TARN, page 191.
624 RH, page 181.
625 JAY, page 189.
626 PEACH, PIT, TIM, page 183.
627 HESQUIAT, SATCHIE, BROWN JUG, page 216.
628 BON, page 209.
629 GUB, TAB, page 204.
630 ACE, BETA, page 203.
631 CAT, CYPRUS, page 217.
632 AB, page 222.
633 DORE, POLLY, page 222.
634 CANDY, page 223.
635 A, H, page 201.
636 M, page 203.
637 JON, page 196.
638 T, ZZ, page 226.
639 ORMOND, CONTACT, page 216.
640 FOREMOST, CLEAR CREEK, COPPER CREEK, page 217.
641 HM, page 220.
642 N, TEXAS, page 189.
643 HAR, EXPO, page 205.
644 LUK, page 202.
645 DB, page 183.
646 SODA, page 183.
647 CHAL, page 211.
648 MAGNETIC, MAYNARD, IRON, page 208.
649 VERN, WIN, page 214.
650 AX, ZIP, page 189.
651 OWL, OC, KB, page 188.
652 NOR, page 208.
653 DEB, page 203.
654 ROONEY, page 209.
655 COPPER ROAD, LUCKY JIM, page 211.
656 STAR, page 206.
657 KYU, page 215.
658 CLOVER LEAF, page 198.
659 KAINS, page 206.
660 ANNE, page 223.
661 VENUS, page 194.
662 CHEAKAMUS BRIDGE, TERU, page 192.
663 DIANE, page 198.
664 R, WAPO, page 190.
665 LUCKY STRIKE, G, page 190.
666 KOERNER, SAUCE, page 205.
667 WR, page 210.
668 EXPO, page 202.
669 BRAD, page 206.
670 BRALORNE MINE, page 187.
671 EAGLE, page 188.
672 ROB (NADIRA), page 221.
673 AVALLIN, page 221.
674 PW, RW, JB, page 216.
675 KALAPPA, page 217.
676 GB No. 1 GROUP, page 204.
677 GB No. 2 GROUP, page 203.
678 DEM, page 205.
679 ML, page 182.
680 TASEKO, SPOKANE, EMPRESS, MOHAWK, page 181.
681 BD, VB, WIN, page 184.
682 SIRIUS, page 224.
683 LENORA, TYEE, RICHARD III, page 224.
684 SUNLOCH, GABBRO, page 224.
685 ALPHA, BETA, HILLCREST, page 223.
686 SOOKE COPPER, page 225.
687 TEXADA MINE, page 213.
688 LYNX MINE, page 218.
PARAMOUNT, page 218.
PRICE, page 218.
689 NIC, page 190.
690 ANDY, PAK, page 220.
691 AM, page 199.
692 PRIDE OF EMORY MINE, page 196.
693 EUREKA, VICTORIA, page 199.
694 ARANY, EMILE, page 195.
695 TIN, CAN, page 196.
696 AZURE, page 192.
697 ELK, page 191.
698 BRITANNIA MINE, page 193.
699 BOUNTY, EXPO, page 194.
700 FL, page 215.
701 OLD SPORT MINE, page 207.
702 ISLAND COPPER (formerly BAY), page 204.
703 TIE, SUSAN, page 208.
704 CLANCY (ALICE LAKE, PEERLESS, PILGRIM), page 207.
705 KW, H, page 202.
706 CEE, KAYE, JACK, page 201.
707 KAS (CALEDONIA), page 215.
708 CAM, DOC, page 210.
709 TI, MOM, BUD, page 201.
710 CS, page 200.
711 AAA, page 201.
712 AIRD, page 200.
713 SECHART (BALMORAL), page 220.
714 CREAM, BEAR, page 219.
715 VENUS, ST. JOSEPH (JUNEAU), page 214.
716 VAN, SUNNY CAVE, page 191.
717 MO, page 195.
718 EMPRESS, page 195.
719 LUCKY STRIKE, RICKY, BOB, page 185.
720 PAUL, page 185.
721 MANITOU, page 185.
722 BJB, page 182.
723 BILL, NW, page 181.
724 SKULL, STAN, MAC, page 184.
725 FG, page 184.
726 INDIAN RIVER COPPER, LH, page 193.
727 DC, RW, IT, ULL, page 222.
728 RH, ELK, ECHO, CAM, page 206.
729 COPPER BELL, page 212.
730 COPPER HILL, COLLEEN, page 212.
731 SEEL, AB, page 213.
732 HERB, MOON, RED, BLUE, page 219.
733 NIK, page 195.

CLINTON MINING DIVISION

TATLAYOKO LAKE

BAT (No. 616, Fig. 33)

LOCATION: Lat. 51° 31.3' Long. 124° 36.3' (92N/10E)
Eight miles up Ottarasko Creek from Tatlayoko Lake at 6,500 feet elevation.

CLAIMS: BAT 1 to 18.

ACCESS: By horse, about 20 miles from Tatlayoko Post Office.

OWNERS: E. FLESHER and J. DAVIS, P.O. Box 1510, Campbell River.

WORK DONE: Prospecting, soil and chip sampling, and two X-ray diamond-drill holes totalling 65 feet.

TASEKO LAKES

BB (No. 622, Fig. 33)

LOCATION: Lat. 51° 26'–29.5' Long. 123° 33'–39.5' (92O/5E)
North side of Fish Lake (6 miles north of Taseko Lakes), at approximately 4,000 to 5,000 feet elevation.

CLAIMS: One hundred and fifty-two, comprising the BB, BJ, and BT groups (formerly FISH LAKE, VICCAL).

ACCESS: Fifty miles by road from Hanceville.

OWNER: TASEKO MINES LIMITED, 248 Second Avenue, Kamloops.

METALS: Copper, gold.

WORK DONE: Topographical, geological, magnetometer, and geochemical surveys were carried out on the property. Some bedrock stripping and 1,000 feet of trenching were done by bulldozer and 5 miles of road was constructed. Six BQ holes totalling 3,000 feet were diamond drilled and 20 NQ holes totalling 8,000 feet were percussion drilled. The work was supervised by G. A. Dirom.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1935, pp. 28, 29; 1961, p. 24; 1962, p. 21; 1968, p. 154.

DESCRIPTION: A porphyry-type deposit of chalcopyrite, pyrite, and gold in granodiorite.

BANNER (No. 611, Fig. 33)

LOCATION: Lat. 51° 15' Long. 123° 32' (92O/4E, 5E)
On the east side of Taseko Lakes, immediately north of Chita Creek, between elevations of 4,500 and 7,500 feet.

CLAIMS: BANNER 1 to 80.

ACCESS: By road, 120 miles from Williams Lake.

OWNER: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: Four BQ diamond-drill holes totalling 1,290 feet; I. M. Watson, supervisor.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 154; Assessment Report No. 1606.

TASEKO, SPOKANE, EMPRESS, MOHAWK (No. 680, Fig. 33)

Location: Lat. 51° 04′–07′ Long. 123° 20′–28′ (92O/3W)
On Taseko River and Amazon and Granite Creeks.

Claims: Approximately 180, comprising the TASEKO, SPOKANE BLUE SKY, SPOKANE ROSY DAWN, BABBLING BROOK, FLAP-JACK, and other located claims, and the AMAZON (Lot 5454) and LIMONITE Nos. 1, 2, and 3 (Lots 3132 to 3134) Crown-granted claims.

Access: By float or ski-equipped plane to Taseko Lakes; thence by tote-road to the camp, or from Williams Lake to Hanceville and then southwest to the camp by road, a distance of 170 miles.

Owner: National Nickel Company Limited.

Operator: SCURRY-RAINBOW OIL LIMITED, 539 Eighth Avenue S.W., Calgary, Alta.

Metals: Copper, moybdenum, gold, silver.

Work Done: Magnetic and electromagnetic surveys were run over 5½ line-miles on the BABBLING BROOK, PERFECT DAY, OLD AND RARE, and TASEKO No. 42 claims and over 7½ line-miles on the SPOKANE and LIMONITE No. 1 claims.

References: *Minister of Mines, B.C.*, Ann. Repts., 1935, pp. F 22–F 25; 1956, p. 35; 1968, p. 155; Assessment Reports Nos. 2134, 2226A, and 2226B.

RH (No. 624, Fig. 33)

Location: Lat. 51° 02.5′–05.5′ Long. 123° 16.5′–19′ (92O/3W)
On Griswold Creek, 12 miles southeast of the south end of Taseko Lakes, at approximately 5,500 feet elevation.

Claims: RH 1 to 106 (formerly MAD MAJOR).

Access: From Clinton, 70 miles by helicopter.

Owner: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Tape and compass, geological, and geochemical surveys were conducted on the claims. Approximately 750 soil samples were taken for analysis. Four trenches totalling 1,650 feet in length were bulldozed. P. G. Curtis was in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1919, p. 249; 1968, p. 155; Assessment Report No. 1729.

BILL, NW (No. 723, Fig. 33)

Location: Lat. 51° 02′–03′ Long. 123° 20.5′–23.5′ (92O/3W)
Between the headwaters of Granite and Griswold Creeks, at approximately 6,000 feet elevation.

Claims: BILL 1 to 12, NW 5 to 10, 17 to 22.

Access: By helicopter, 30 miles northwest from Gold Bridge.

Owner: VICTOR MINING CORPORATION LTD., 818, 510 West Hastings Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: Three trenches totalling 200 feet in length were excavated.

BJB (No. 722, Fig. 33)

LOCATION: Lat. 51° 06′ Long. 123° 11′ (92O/3E)
Immediately south of Lorna Lake, 23 miles northwest of Gold Bridge, at 6,400 to 9,300 feet elevation.

CLAIMS: BJB 1 to 42.

ACCESS: By helicopter from Gold Bridge.

OPERATOR: BURLINGTON MINES LTD., 818, 510 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

WORK DONE: The claims were mapped topographically and geologically, a few stream sediment samples were taken for analysis, and two trenches totalling 20 feet in length were blasted. F. Lee, in charge.

DESCRIPTION: Veinlets of chalcopyrite occur as fracture-fillings at the contact between a monzonite stock and its peripheral hornfels. The mineralization occurs in both the intrusive and the country rock.

CHILCOTIN RIVER

FARWELL (No. 603, Fig. 33)

LOCATION: Lat. 51° 49′ Long. 122° 34′ (92O/15E)
On Farwell Creek, one-half mile from the Chilcotin River, between 2,000 and 3,000 feet elevation.

CLAIMS: FARWELL 1 to 6.

ACCESS: By gravel road west from Williams Lake to Riske Creek and then southwest to the property.

OPERATOR: CHILCOTIN SILVER MINES LTD., 1250, 505 Burrard Street, Vancouver 1.

WORK DONE: Approximately 4 line-miles of line-cutting and a geochemical survey of all claims; D. R. Cochrane, in charge.

REFERENCE: Assessment Report No. 1968.

SILVER, KLEIV, MARIE (No. 604, Fig. 33)

LOCATION: Lat. 51° 44′ Long. 122° 26′ (92O/9W)
On the west side of the Chilcotin River, at its confluence with the Fraser.

CLAIMS: SILVER 1 to 10, KLEIV 9 to 14, and 14 MARIE claims.

ACCESS: Forty-nine miles by road south from Williams Lake to Riske Creek; thence south across the Chilcotin River to the claims. There is an airstrip on the property.

OPERATOR: CHILCOTIN SILVER MINES LTD., 1250, 505 Burrard Street, Vancouver 1.

WORK DONE: Eight line-miles of line-cutting and soil sampling on the SILVER and KLEIV claims and an aeromagnetic survey of 51 line-miles covering most of the claims and surrounding areas; D. R. Cochrane, supervisor.

REFERENCES: Assessment Reports Nos. 1877 and 1964.

ML (No. 679, Fig. 33)

LOCATION: Lat. 51° 34′–38.5′ Long. 122° 48′–54.5′ (92O/10W)
Ten miles southeast of Big Creek Post Office, at elevations of 4,900 to 5,700 feet.

CLAIMS: ML 1 to 174.

ACCESS: From Williams Lake, 50 miles to the northeast, by highway and logging-roads to within 2 miles of the claims; thence by trail.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METAL: Copper.

WORK DONE: Magnetic, electromagnetic, geochemical, and reconnaissance geological surveys were completed over approximately 100 line-miles. N. B. Vollo, in charge.

REFERENCE: Assessment Reports Nos. 2127 and 2174.

LAC LA HACHE

SODA (No. 646, Fig. 33)

LOCATION: Lat. 51° 47.5′ Long. 121° 22′ (92P/14W)
Northwest side of Soda Lake, 5 miles east-southeast of La la Hache village.

CLAIMS: SODA 1 to 60.

ACCESS: By road, 7 miles from Lac la Hache.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

WORK DONE: Four line-miles of induced polarization survey.

DB (No. 645, Fig. 33)

LOCATION: Lat. 51° 50.5′ Long. 121° 23′ (92P/14W)
Surrounding and to the east of Whitehorse Lake, 4 miles northeast of Lac la Hache village.

CLAIMS: DB 1 to 40.

ACCESS: Four miles by road from Lac la Hache.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

WORK DONE: An induced polarization survey covering 3.2 line-miles.

PEACH, PIT, TIM (No. 626, Fig. 33)

LOCATION: Lat. 51° 57.5′ Long. 121° 19′ (92P/14W)
One and one-half miles south of Peach Lake, at 3,500 to 4,000 feet elevation.

CLAIMS: One hundred and fourteen PEACH, PIT, and TIM claims.

ACCESS: From Lac la Hache, 15 miles by road.

OWNER: Coranex Limited.

OPERATOR: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: The surface workings were mapped and 13.5 line-miles of induced polarization survey was conducted over part of the PEACH and PIT groups. Six trenches totalling 1,900 feet in length were bulldozed. The work was supervised by E. Bayley (Jr.).

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 126; 1968, pp. 155–159; Assessment Reports Nos. 1037, 1038, 1131, 1696, and 1734.

DESCRIPTION: *See* Minister of Mines and Petroleum Resources Annual Report, 1968, pages 155–159.

FG (No. 725, Fig. 33)

LOCATION: Lat. 51° 46.5′ Long. 121° 04′ (92P/14E)
Immediately east of the village of Forest Grove, 12 miles northeast of 100 Mile House.

CLAIMS: FG 1 to 20.

ACCESS: The highway to Canim Lake passes through the property.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

WORK DONE: Magnetic and electromagnetic surveys were run over a grid of 12 line-miles, covering most of the claims, and approximately 300 soil samples were taken for analysis. N. B. Vollo, in charge.

REFERENCE: Assessment Report No. 1858.

SKULL, STAN, MAC (No. 724, Fig. 33)

LOCATION: Lat. 51° 47.5′ Long. 121° 10.5′ (92P/14E)
Eleven miles north-northeast of 100 Mile House, at approximately 3,500 feet elevation.

CLAIMS: SKULL 1 to 16, STAN 3 to 6, MAC 1 to 6.

ACCESS: By road, 10 miles east along the 111-mile road which meets the Cariboo highway 11 miles north of 100 Mile House.

OWNER: C. Empey.

OPERATOR: CANWAY EXPLORATIONS LTD., 625, 925 West Georgia Street, Vancouver 1.

WORK DONE: A geochemical soil survey of 13.1 line-miles, covering all claims; approximately 310 samples collected; also an induced polarization survey covering all the claims.

REFERENCES: Assessment Reports Nos. 1883 and 2303.

70 MILE HOUSE

BD, VB, WIN (Dansey-Rayfield River) (No. 681, Fig. 33)

LOCATION: Lat. 51° 15′–21′ Long. 121° 04′–08′ (92P/6E)
On Rayfield River, 8 miles southeast of Green Lake, at elevations of 3,000 to 4,000 feet.

CLAIMS: BD 29 to 84, VB 1 to 8, 9 Fraction, 10 to 61, and 129 WIN claims.

ACCESS: From 70 Mile House east via Young Lake for 12 miles; thence southeast via a four-wheel-drive logging road for 5 miles.

OPERATOR: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: An area of 10 square miles, covering most of the claims, was mapped geologically, induced polarization and magnetometer surveys were run over 8 and 10½ line-miles respectively on the central part of the BD and VB claims, and a geochemical soil, silt, water, and rock-chip survey was made on the BD and VB claims. Approximately 1,230 samples were taken for analysis. Twenty-four trenches totalling 6,295 feet in length were bulldozed through overburden and 18 trenches totalling 1,420 feet were made in bedrock. Four miles of road was constructed. D. K. Mustard, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 159; Assessment Reports Nos. 859, 1723, and 2135.

LILLOOET MINING DIVISION

BRIDGE RIVER

Tyaughton Creek

MANITOU (No. 721, Fig. 33)

By E. Sadar

Location: Lat. 51° 03.5′ Long. 122° 46′ (92O/2W)
Confluence of Mud, Relay, and Tyaughton Creeks.

Claims: Seventy-four claims, comprising the FLORENCE, GRIZZLY, IRIS, LEIF, LINK, MERCURY, MARIE, RELAY, ROSS, and UNNA.

Access: Accessible from the Lillooet–Bralorne road by 20 miles of road along Tyaughton Creek.

Owner: EMPIRE MERCURY CORPORATION LTD., 3, 558 Howe Street, Vancouver 1.

Metal: Mercury.

Work Done: Underground diamond drilling, 1,544 feet; trenching, 2,050 feet.

References: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 138; *B.C. Dept. of Mines*, Bull. No. 5, 1940, p. 70.

PAUL (No. 720, Fig. 33)

Location: Lat. 50° 59.5′ Long. 122° 46′ (92J/15W)
Three miles north of Tyaughton Lake, at 2,000 to 3,000 feet elevation.

Claims: PAUL 1 to 6, 9 to 14, 1 Fraction.

Access: By road, 5 miles from Tyaughton Lake.

Owner: P. Palenkas.

Operator: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

Metal: Mercury.

Work Done: The surface workings were mapped, a few soil samples were collected for analysis, and three trenches totalling 180 feet in length were excavated.

Description: Cinnabar occurs in carbonatized and serpentinized fracture zones in andesite.

LUCKY STRIKE, RICKY, BOB (No. 719, Fig. 33)

Location: Lat. 51° 00′ Long. 122° 52′ (92J/15W, 92O/2W)
Between the heads of Eldorado and Taylor Creeks, at 5,500 to 7,500 feet elevation.

Claims: Approximately 63 Crown-granted claims and 73 located claims, including the LUCKY STRIKE, RICKY, BOB, MARY, and CHRIS groups. The property has also been referred to as the BONANZA and ROBSON showings.

Access: By road, 11 miles from Tyaughton Lake.

Owner: BRIDGE RIVER UNITED MINES LTD., 1368 West 47th Avenue, Vancouver 13.

Metals: Silver, gold, copper, lead, zinc.

Work Done: Geological mapping was done on LUCKY STRIKE and RICKY claims and stream sediment samples were collected for analysis from LUCKY STRIKE 4 to 7 and 5 Fraction claims. Approximately 135 feet of trenching and 1,500 square feet of stripping was done by hand and water sluicing. Sixteen miles of road maintenance was carried out along Taylor and Gun Creeks. R. R. Taylor, in charge.

References: *Minister of Mines, B.C.,* Ann. Repts., 1967, p. 129; 1968, p. 161.

Description: Complex sulphides occur in veins in shear zones, in skarn, and as replacement and contact deposits. The host rocks are quartz diorite and Hurley and Taylor sediments.

CHARLOTTE, ANN (No. 610, Fig. 33)

Location: Lat. 50° 58′ Long. 122° 49′ (92J/15W)
Two miles northwest of Tyaughton Lake, at approximately 6,900 feet elevation.

Claims: CHARLOTTE, ANN, CHERYL, and TWEED FRACTION, 96 in all. The ground was formerly located as the Lillomer.

Access: By road, 5 miles from Tyaughton Lake.

Operator: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

Metal: Mercury.

Work Done: Topographic maps of the property and surface workings were prepared. A geological survey, 14.5 line-miles of magnetometer survey, and a geochemical survey involving 762 samples were carried out. Ten bulldozer and three hand trenches totalling 4,000 feet in length were made and four NQ holes totalling 1,649 feet were diamond drilled. I. M. Watson was in charge.

References: *Minister of Mines, B.C.,* Ann. Rept., 1937, p. F 31; *B.C. Dept. of Mines,* Bull. No. 5, 1940, p. 81.

Description: Cinnabar and minor native mercury occur as disseminations and fracture-fillings in sheared, carbonatized, and silicified volcanics.

TUNGSTEN QUEEN (No. 609, Fig. 33)

Location: Lat. 51° 02′ Long. 122° 45′ (92O/2E, 2W)
On Tyaughton Creek, between Relay and Noaxe Creeks, at 4,000 to 5,000 feet elevation.

Claims: Eighty-eight, including KAS, GORDIE, CINNABAR, and others.

Access: Fifteen miles by road from Gold Bridge.

Operator: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

Metals: Mercury, tungsten.

Work Done: Topographic maps of the property and surface workings were prepared. A geological survey and 31.5 line-miles of magnetic survey were conducted. Approximately 1,500 samples were taken for geochemical analysis. Twelve bulldozer trenches totalling 11,000 feet in length and two hand pits of 8 feet total depth were dug. I. M. Watson was in charge.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1952, p. 114.

Description: Cinnabar and hematite are associated with fractures and shear zones in volcanics, and scheelite occurs in veins in carbonatized serpentinite.

SILVERQUICK MINE (No. 601, Fig. 33)

By E. Sadar

Location: Lat. 51° 03′ Long. 122° 49′ (92O/2W)
On Tyaughton Creek, 2 miles west of Relay Creek.

Claims: Ninety-one claims, comprising DOT, WOODS, SILVERQUICK, MILLS, BOB, KIM, HARRY, CAL, GRACE, VON, and FRY.

ACCESS: Accessible from the Lillooet–Bralorne road by 21 miles of road along Tyaughton Creek.

OWNER: SILVERQUICK DEVELOPMENT CO. (B.C.) LTD., 8, 22374 Lougheed Highway, Haney.

METAL: Mercury.

WORK DONE: A 500-ton-per-day concentrator and a 4-ton-per-day retort were constructed. All equipment was installed in the mill and test run without load. The perimeters of 14 claims were surveyed, 2,800 feet of trenching and 20,000 square feet of stripping were done, and a road was constructed from the camp to the mill, a distance of 2,000 feet. Approximately 24 persons were employed from March to November when the camp closed for winter. S. H. Glasmire supervised the work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts. 1967, p. 129; 1968, p. 161.

CADWALLADER CREEK

BRALORNE MINE (No. 670, Fig. 33)

By E. Sadar

LOCATION: Lat. 50° 46′ Long. 122° 48′ (92J/10W, 15W)
On Cadwallader Creek, 5 miles south of Gold Bridge.

CLAIMS: One hundred and thirty-six claims comprise the Bralorne group.

ACCESS: Seventy miles west of Lillooet on the Lillooet–Bralorne road on Cadwallader Creek.

OWNER: BRALORNE CAN-FER RESOURCES LIMITED (formerly Bralorne Pioneer Mines Limited), 355 Burrard Street, Vancouver 1; mine address, P.O. Box 367, Bralorne; E. H. Hall, resident manager; D. B. Cameron, mine superintendent; E. J. Weston, mill superintendent.

METAL: Gold (*see* Table 12 for production).

WORK DONE:

	Feet
Raising, conventional	97
Raise boring	349
Sinking	39
Drifting	644
Decline drifting	539

A total of 119 men was employed. Three 50-kva. 4,600-460-volt transformers were installed at 4100 substation. A three-conductor 1/O A.W.G. steel wire armoured power cable was installed from 4100 substation to 4300 level to supply 4300 and 4400 levels.

CHALCO (No. 621, Fig. 33)

LOCATION: Lat. 50° 43.3′ Long. 122° 38.5′ (92J/10E)
On Piebiter Creek, at approximately 5,500 feet elevation.

CLAIMS: The Crown-granted claims CHALCO Nos. 5, 8 Fraction, 12, 35, 6, and 13 (Lots 7700 and 7705 respectively), CHALCO Nos. 10, 36 to 39, 9, and D Fraction (Lots 7765 to 7771 respectively), and the located claims ABO 1 to 5.

ACCESS: Eight miles by road from Bralorne.

OWNER: Union Carbide Canada Mining Ltd.

OPERATOR: UNION CARBIDE EXPLORATION CORPORATION, 601, 1112 West Pender Street, Vancouver 1.

METALS: Tungsten, molybdenum, copper.

WORK DONE: The surface workings were mapped and geological and magnetometer surveys were conducted over the CHALCO No. 5 claim. Three trenches, totalling 1,300 feet in length, were bulldozed, three pits were dug by hand, and 2 miles of road was constructed on Cadwallader and Piebiter Creeks. A total length of 2,208 feet was diamond drilled in 15 AXK holes. D. L. Cook, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1948, pp. 97–102; 1952, p. 114; 1954, p. 103; Assessment Report No. 105.

DESCRIPTION: Skarn-type deposits of scheelite, molybdenite, and chalcopyrite occur in metamorphosed sediments which are intruded by the Bendor batholith.

YALAKOM RIVER

EAGLE (No. 671, Fig. 33)

By E. Sadar

LOCATION: Lat. 50° 56′ Long. 122° 16′ (92J/16W)
On Yalakom River, opposite Shulaps Creek.

CLAIMS: Ninety-five claims, comprising the EAGLE, RED EAGLE, YALAKOM, and CONDOR groups.

ACCESS: Accessible from Lillooet–Bralorne road by 9 miles of road along Yalakom River.

OWNER: CONDOR MINES LTD., 123, 845 Hornby Street, Vancouver 1; G. Rose, mine superintendent.

METAL: Mercury.

WORK DONE: Surface diamond drilling, trenching, road building, and 100 feet of underground development.

REFERENCE: *Minister of Minies, B.C.*, Ann. Rept., 1966, p. 137.

PEMBERTON

OWL, OC, KB (No. 651, Fig. 33)

LOCATION: Lat. 50° 23′ Long. 122° 47′ (92J/7E, 7W)
On Owl Creek, north of Pemberton, from the Birkenhead River to Owl Lake. The property includes the former COPPER QUEEN showings.

CLAIMS: OWL, OC, KB, OL, OLS, OLN, OCS, and BO, 148 in all.

ACCESS: By road, 7 miles from Pemberton.

OPERATOR: PINE LAKE MINING CO. LTD., 717, 402 West Pender Street, Vancouver 3 (optioned from L. Harrison and J. S. Scott).

METALS: Copper, molybdenum.

WORK DONE: In the C zone, four claims were surveyed and the surface workings were mapped. The KB 3 to 6 and OL 2 claims were mapped geologically. An induced polarization survey totalling 10 line-miles and a magnetometer survey totalling 14 line-miles were made on KB and OL claims. Approximately 1,100 soil samples were collected for analysis from KB, OL, OLS, and OLN claims. A road was constructed from the A zone to the C zone, a distance of 4 miles, and nine holes totalling 7,776 feet were diamond drilled. R. A. Hrkac supervised the work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1916, pp. 270–272; Assessment Reports Nos. 599 and 2106.

DESCRIPTION: Chalcopyrite, molybdenite, and pyrite with minor magnetite and bornite occur as disseminations, blebs, and fracture-fillings in quartz diorite and as replacements in volcanic rocks.

AX, ZIP (No. 650, Fig. 33)

LOCATION: Lat. 50° 16′ Long. 122° 35′ (92J/7E)
On the west side of Lillooet Lake, 10 miles east-southeast of Pemberton.

CLAIMS: AX 1 to 58, ZIP 1 to 4.

ACCESS: By road and boat, 12 miles from Pemberton.

OWNER: A. B. Baldwin.

OPERATOR: CERRO MINING COMPANY OF CANADA LIMITED, 401, 44 Victoria Street, Toronto 1, Ont.

METAL: Copper.

WORK DONE: The surface workings, about 150 feet of adit, most of the AX claims, and the area of the Lake adit were mapped geologically. Magnetic and electromagnetic surveys totalling 3 line-miles were made on the AX 5 and 6 claims and 600 soil samples were taken for analysis. Three open cuts were enlarged by blasting. M. D. Kierans supervised the work.

DESCRIPTION: Copper and magnetite occur in a skarn-type deposit in limestone and altered andesites.

N, TEXAS (No. 642, Fig. 33)

LOCATION: Lat. 50° 28′–30.5′ Long. 122° 41′–43.5′ (92J/7E, 10E)
South end of Birkenhead Lake, at approximately 2,000 feet elevation.

CLAIMS: N 1 to 4; TEXAS 1 to 4, 7 to 12, 15 to 57; FLO 1 and 2; PEN 1 and 2, a total of 61.

ACCESS: By road, 5 miles north from Gramsons.

OWNER: MALIBU METALS LTD., P2, 845 Hornby Street, Vancouver 2.

METALS: Copper, gold, silver, iron.

WORK DONE: The surface workings were mapped and the N and part of the TEXAS claims were geologically mapped. An aeromagnetic survey, 48 line-miles in length, covered all claims. Four miles of road was constructed on TEXAS claims and 1,230 feet was diamond drilled in three BQ holes. The work was supervised by R. Goodell.

DESCRIPTION: Sulphides occur as disseminations and in fissures in brecciated volcanics, granodiorite, and quartz diorite.

VANCOUVER MINING DIVISION

KLINAKLINI RIVER

JAY (No. 625, Fig. 33)

LOCATION: Lat. 51° 49.5′–51′ Long. 125° 41′–43.5′ (92N/13E)
On the west side of Knot Creek, 6 miles south of Knot Lake, at an elevation of about 6,500 feet.

CLAIMS: JAY 1 to 49.

ACCESS: Forty miles by helicopter from Nimpo Lake.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: A geological survey and a geochemical survey comprising 50 silt samples were carried out on the claims. D. H. Olson was in charge.

DESCRIPTION: Chalcopyrite occurs as a replacement in chloritized metasedimentary rocks.

CRACROFT ISLANDS

LUCKY STRIKE, G (No. 665, Fig. 33)

LOCATION: Lat. 50° 33′ Long. 126° 32′ (92L/10E)
On Harbledown and West Cracroft Islands, 1½ miles west of Hazel Island. The claims lie on the north and south shores of Baronet Passage.

CLAIMS: LUCKY STRIKE, LUCKY STRIKE 15 to 17, G 1 to 17.

ACCESS: By boat or plane from Campbell River, 70 miles to the southeast.

OWNER: M. E. and W. Gilbertson.

OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METAL: Copper.

WORK DONE: The surface workings were mapped and 10 old and new trenches were either cleaned or blasted. Approximately 200 soil and silt samples were taken for analysis from the West Cracroft Island claims. T. Johnson, supervisor.

DESCRIPTION: Chalcopyrite and bornite occur as disseminations and in shear zones in andesite.

TOBA INLET

R, WAPO (No. 664, Fig. 33)

LOCATION: Lat. 50° 18.7′ Long. 124° 59′ (92K/6E, 7W)
Northeast Raza Island, at the mouth of Toba Inlet.

CLAIMS: R 1 to 16, WAPO 7, 9, and 11.

ACCESS: By plane or boat from Campbell River, 25 miles to the southwest.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: The surface workings were mapped and 50 soil samples were collected for analysis. L. B. Gatenby, supervisor.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 73.

POWELL RIVER

NIC (No. 689, Fig. 33)

LOCATION: Lat. 49° 54.5′ Long. 124° 26.5′ (92F/16W)
Above the west side of Haslam Lake, between 1,000 and 2,550 feet elevation, 5 miles east of Powell River.

CLAIMS: NIC 1 to 4.

ACCESS: By road, 6 miles from Powell River.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: An induced polarization survey of 1 line-mile on NIC 1, 2, and 3 claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 73; Assessment Report No. 1864.

DESCRIPTION: Chalcopyrite, molybdenite, malachite, and specularite occur as fracture fillings and in quartz veins in quartz diorite and granodiorite.

ALTA LAKE

CALLAGHAN, TARN (No. 623, Fig. 33)

LOCATION: Lat. 50° 05′–07′ Long. 123° 09′ (92J/3E)
North side of Brandywine Creek, 10 miles west of Alta Lake.

CLAIMS: CALLAGHAN, TARN 1 to 11, and others, 30 in all (formerly known as ASTRA, CAMBRIA, and TWIN LAKE).

ACCESS: From McGuire, 3½ miles by road.

OWNER: BARKLEY VALLEY MINES LTD., 96—67th Street, Delta.

METALS: Silver, lead, zinc, copper, tungsten, antimony, gold.

WORK DONE: A 40-foot-long trench and a 30-foot-deep open cut were dug through overburden and 900 square feet of stripping was done. Two trenches totalling 140 feet in length were cut in bedrock and about 4 miles of road was constructed from the highway to the TARN group. A total of 1,100 feet was diamond drilled in seven holes and a total of 4,700 feet was percussion drilled in 46 holes.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 75; Assessment Reports Nos. 424 and 1577.

VAN, SUNNY CAVE (No. 716, Fig. 33)

LOCATION: Lat. 50° 04′ Long. 123° 08.5′ (92J/3E)
The claims extend from 1 mile south of, to 5 miles north of, Brandywine Falls and lie at 1,450 to 3,500 feet elevation.

CLAIMS: VAN 1 to 55, 57 to 90; SUNNY CAVE; SUNNY CAVE 1 to 28; STAR 1 and 2, and 12 others, for a total of 132. The claims encompass the former BLUE JACK property.

ACCESS: By road, 26 miles north of Squamish on the Squamish–Pemberton highway.

OWNER: VAN SILVER EXPLORATIONS LTD., 1661 Victoria Drive, Vancouver 6.

METALS: Gold, silver, copper, lead, zinc, tungsten.

WORK DONE: A magnetometer survey was run over 6 line-miles on VAN 23 claim and a biogeochemical survey was made on SUNNY CAVE 10 and 25 claims. Approximately 100 hemlock twig samples were taken for analysis. An area measuring 425 by 50 by 10 feet was stripped by bulldozer, 7,655 feet of road was constructed at the south end of the property, and three trenches, total length 125 feet, were excavated. An adit was reopened and retimbered for a length of 75 feet. D. R. Morgan, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1936, pp. F 56–F 58; 1968, pp. 74, 75.

DESCRIPTION: Chalcopyrite, sphalerite, galena, and scheelite occur in veins and as fracture fillings in chloritized and epidotized metadiorite. The main showings are described in detail in the Annual Report of the Minister of Mines for 1936, pages F 56 to F 58.

ELK (No. 697, Fig. 33)

LOCATION: Lat. 50° 06′ Long. 123° 02.5′ (92J/3E)
On the north side of Millar Creek, 4 miles northeast of McGuire, at 2,500 to 4,000 feet elevation.

CLAIMS: Seventeen ELK claims.

ACCESS: By logging-road, 3 miles from Alta Lake.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: Geological mapping, an induced polarization survey of 2½ line-miles, and a geochemical soil survey.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 74; Assessment Reports Nos. 756 and 1562.

LONDON, AXE (No. 615, Fig. 33)

LOCATION: Lat. 50° 04.5′ Long. 122° 55.3′ (92J/2W)
On the southwest side of Fitzsimmons Creek, about 5 miles from Alta Lake, at an elevation of 4,000 to 4,400 feet.

CLAIMS: The Crown-granted claims ROYAL EDWARD, LONDON, HARD CASH, IRON HAT, ALBANY, TONOPAH, and IRON WEDGE Fr. (Lots 2159–2163, 2165, and 2168 respectively), and LONDON 11 to 15 and AXE 1 to 8 recorded claims.

ACCESS: By logging-road from the Squamish–Pemberton highway.

OWNER: NEW JERSEY ZINC EXPLORATION COMPANY (CANADA) LTD., 905, 525 Seymour Street, Vancouver 2.

METAL: Copper.

WORK DONE: Five BQ and AQ holes totalling 1,272 feet were diamond drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1963, p. 94; 1967, p. 60; 1968, p. 74.

DESCRIPTION: *See* Minister of Mines and Petroleum Resources Annual Report, 1963, page 94.

AZURE (No. 696, Fig. 33)

LOCATION: Lat. 50° 05′–08′ Long. 122° 55.5′–58.5′ (92J/2W)
On Fitzsimmons Creek, from the Garibaldi Provincial Park boundary northwestward to the Pacific Great Eastern railway.

CLAIMS: Approximately 80 AZURE claims.

ACCESS: By road, 3 miles from Alta Lake.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

WORK DONE: The geology of a portion of the claims was mapped and approximately 2 line-miles of induced polarization and a geochemical soil survey were done on the AZURE 16, 18, 45, and 48 claims. J. T. Walker and A. E. Soregaroli, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1963, p. 95; 1964, p. 146; 1965, p. 223; Assessment Report No. 508.

DESCRIPTION: Disseminated chalcopyrite and pyrite are associated with quartz in a quartz-sericite schist. Lenses of chalcopyrite occur locally.

SQUAMISH

CHEAKAMUS BRIDGE, TERU (No. 662, Fig. 33)

LOCATION: Lat. 49° 50′ Long. 123° 10′ (92G/14E)
On Highway No. 99, 15 miles north of Squamish.

CLAIMS: CHEAKAMUS BRIDGE 1, 3, 4; TERU 7 and 8.

ACCESS: By Highway No. 99.

OPERATOR: SQUAMISH STONE & SILICA CO. LTD., 8744 Joffre Avenue, Burnaby 1.

METAL: Copper.

WORK DONE: Three holes totalling 205 feet were diamond drilled.

DESCRIPTION: Chalcopyrite and bornite are disseminated in quartzite near a diorite contact.

INDIAN RIVER COPPER, LH (No. 726, Fig. 33)

LOCATION: Lat. 49° 38.5′ Long. 123° 02′ (92G/11E)
One mile south of Mount Baldwin, between the headwaters of Stawamus and Indian Rivers, at approximately 2,500 feet elevation.

CLAIMS: INDIAN RIVER COPPER 1 to 4, 17 to 24, LH 1 to 9.

ACCESS: By dirt road, 8 miles southeast from Squamish.

OWNER: C. Boyd.

OPERATOR: CROYDON MINES LTD., 1177 West Hastings Street, Vancouver 1.

METALS: Copper, zinc.

WORK DONE: An electromagnetic survey was run over 18 miles of grid-line. J. W. Hogan, in charge.

DESCRIPTION: Chalcopyrite and sphalerite replace volcanic rocks.

HOWE SOUND

BRITANNIA MINE (No. 698, Fig. 33)

By J. W. Robinson

LOCATION: Lat. 49° 36.6′ Long. 123° 08.5′ (92G/11E)
The Britannia mine is on the east side of Howe Sound, 40 miles by road from Vancouver.

OWNER: ANACONDA BRITANNIA MINES LTD., Britannia Beach; B. B. Greenlee, vice-president and manager; J. F. Anderson, assistant manager; R. T. Baverstock, mine superintendent; E. R. Parker, mill superintendent.

METALS: Copper, zinc (*see* Table 12 for production).

WORK DONE:

During 1969, mining and extraction of ore were completed in the Victoria mine, the levels were cleaned of all scrap metal, and the Victoria shaft was decommissioned on December 23, 1969.

The Victoria mineral claim was staked on September 15, 1898, by Oliver Furry. The Victoria orebody was discovered in 1919. The first ore was sent to the mill from the Victoria in 1923 by way of the 1600 level, by train, and then by aerial tram. The Victoria ore occurred in rich veins in soft ground. The known reserves were never large, the highest being in 1935 when the existence of 560,000 tons was confirmed. The Victoria townsite was built in 1921, 1922, and 1923 and was a camp for men only. The camp had accommodation for 130 men and operated until June, 1943.

Most of the ore in the Victoria was mined by square-set methods, but in more recent years some of the lower veins were mined by shrinkage. The Victoria, during a production lifetime of 46 years, produced 4,173,634 tons of ore averaging 2.73 per cent copper. The supply of broken ore for the mill has finally been terminated, but the copper water from the Victoria continues to flow to the Beach copper plant.

During 1969, work continued on new facilities required for mining the 040 orebody. A vertical-shaft pilot raise was driven with an Alimak raise climber from the 5700 level to a point 600 feet above the 4950 level. The No. 10 shaft was collared at the 4100 level and was sunk for 1,280 feet. At the same time, access to the site of the 4100 level ore-bins, ore-bin pilot raises to the shaft, and access to the top of the 040 ore zone were completed. Excavations were completed on 4100 level in the No. 10 shaft area for a main transformer station, Koepe hoist motor-generator set, and mine water-reservoir.

In 1969 the following development work was done:—

	Feet
Drifting and crosscutting	6,958
Raising	4,405
Diamond drilling, exploration	24,919
Diamond drilling, development	22,398

The main haulage adit of the mine is on 4100 level, with the main portal at Britannia Beach. During 1969, production came from the Victoria, Bluff, and No. 8 mines. The Bluff section is serviced by the No. 7 shaft, which extends from 4100 level up to the 2200 level, and is 2.2 miles from the portal. The No. 8 section is serviced by the No. 8 shaft, which extends from 4100 level down to the 5700 level. Development of the 040 orebody from the No. 10 shaft will be given priority during 1970 and it is planned to achieve production from the No. 10 shaft by 1971.

Nine thousand feet of 3-conductor, No. 1/0 A.W.G., 7,000-volt feeder was installed from the Beach powerhouse to the new No. 10 shaft distribution centre. This centre consists of a 5-section load-break panel.

One 1,000-kva. 7,000–2,300-volt transformer and one 325-kva. 7,000–440-volt transformer were installed at No. 10 shaft. A 30-horsepower fan and dust collector was also installed at No. 10 shaft.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 57; 1967, p. 61; 1968, p. 75.

VENUS (No. 661, Fig. 33)

LOCATION: Lat. 49° 38.5′ Long. 123° 12.5′ (92G/11E)
Immediately southwest of Murrin Provincial Park, 1½ miles north of Britannia Beach.

CLAIM: VENUS, 1 claim.

ACCESS: Highway No. 99 passes through the claim.

OPERATOR: SQUAMISH STONE & SILICA CO. LTD., 8744 Joffre Avenue, Burnaby 1.

METALS: Copper, molybdenum.

WORK DONE: Two pits were dug in overburden; some stripping was done; and two trenches totalling 30 feet in length were cut in bedrock.

DESCRIPTION: Chalcopyrite and molybdenite occur as fracture-fillings in quartz porphyry.

NEW WESTMINSTER MINING DIVISION

PITT LAKE

BOUNTY, EXPO (No. 699, Fig. 33)

LOCATION: Lat. 49° 31′ Long. 122° 34′ (92G/10E)
Near the head of Pitt Lake, at the mouth of Vickers Creek.

CLAIMS: BOUNTY, EXPO, and LJ, 27 in all (formerly KATANGA and MAPLE LEAF).

ACCESS: By boat, 20 miles from Grants Landing.

OPERATOR: KENNEDY SILVER MINES LTD., 470 Granville Street, Vancouver 2.

METALS: Copper, zinc, gold, silver.

WORK DONE: Geological mapping was done on BOUNTY 3 and 4 and EXPO 5 and 6, an induced polarization survey was run over 1.6 line-miles on BOUNTY 3 and 4 claims. One trench, 200 feet long, was bulldozed, 3,000 square feet of bedrock was stripped, and one-eighth mile of road was constructed. Four holes totalling approximately 510 feet were diamond drilled. W. M. Sharp, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1926, p. 323; 1929, p. 399; 1930, p. 313; 1968, p. 83.

STAVE LAKE

MO (No. 717, Fig. 33)

LOCATION: Lat. 49° 31′ Long. 122° 09′ (92G/8E, 9E)
Five miles northeast of the head of Stave Lake, at 1,500 to 5,000 feet elevation.

CLAIMS: MO 1 to 51.

OWNER: LARGO MINES LTD., 1110, 505 Burrard Street, Vancouver 1.

WORK DONE: An airborne magnetometer survey of 65 line-miles, covering the entire property.

REFERENCE: Assessment Report No. 1856.

HARRISON LAKE

ARANY, EMILE (No. 694, Fig. 33)

LOCATION: Lat. 49° 20′ Long. 121° 50.5′ (92H/5W)
West side of Harrison Lake, 2 miles southeast of Weaver Lake.

CLAIMS: Eleven ARANY and two EMILE claims.

ACCESS: By road, 8 miles from Harrison Mills.

OWNER: SALVATION MINES LTD., 8446—144th Street, Surrey.

METALS: Copper, lead, zinc, silver.

WORK DONE: Surface blasting and percussion drilling.

NIK (No. 733, Fig. 33)

LOCATION: Lat. 49° 17′ Long. 121° 50′ (92H/5W)
Encompassing Mount Agassiz, 3 miles west-southwest of Harrison Hot Springs.

CLAIMS: NIK 1 to 24.

ACCESS: By logging-road, 8 miles from Highway No. 7.

OWNER: BLACKJAY EXPLORATION LTD., 102, 1765 Duchess Avenue, West Vancouver.

METALS: Nickel, copper.

WORK DONE: A magnetometer survey of 3 line-miles and a biogeochemical survey, covering all claims, were done. Approximately 790 feet was diamond drilled in two holes. D. Scott, in charge.

EMPRESS (No. 718, Fig. 33)

LOCATION: Lat. 49° 17′ Long. 121° 45′ (92H/5E, 5W)
Two miles southeast of Harrison Hot Springs, at approximately 600 feet in elevation.

Claims: EMPRESS 1 to 4 (Lots 1804 to 1807) and EMPRESS No. 6.

Access: By road, 4 miles north from Agassiz by four-wheel-drive vehicle.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: Geological mapping, 5 line-miles each of magnetic and electromagnetic surveys, and a geochemical soil survey (300 samples). J. T. Walker and J. D. Knauer, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1931, p. 176; 1965, p. 220; Assessment Report No. 1879.

Description: Chalcopyrite and molybdenite occur as disseminations and pods in limestone adjacent to a contact with granitic rocks.

CHILLIWACK RIVER

TIN, CAN (No. 695, Fig. 33)

Location: Lat. 49° 02′ Long. 121° 40′ (92H/4E)
On Sleese Creek, 5 miles from the Chilliwack River.

Claims: TIN 1 to 3, CAN 1 to 10.

Access: By road, 5 miles south from the Vedder Crossing–Chilliwack Lake road.

Owner: SALVATION MINES LTD., 8446—144th Street, Surrey.

Work Done: Surface blasting and percussion drilling.

CHILLIWACK LAKE

JON (No. 637, Fig. 33)

Location: Lat. 49° 02′ Long 121° 25′ (92H/3W)
On the southwest side of Chilliwack Lake, opposite Depot Creek.

Claims: JON 5 and 6.

Access: By road and water, 35 miles from Vedder Crossing.

Owner: JOHN M. MACANDREW, 12225 Beecher Street, Crescent Beach.

Metals: Copper, molybdenum.

Work Done: Forty soil samples were collected and analysed, 250 square feet of bedrock was stripped by sluicing, and a 12-foot trench was cut in bedrock.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 82, 83; Assessment Report No. 1604.

HOPE

PRIDE OF EMORY MINE (No. 692, Fig. 33)

By J. W. Robinson

Location: Lat. 49° 28.3′ Long. 121° 29.9′ (92H/6W)
At the head of Stulkawhits (Texas) Creek, which flows eastward into Fraser River 8 miles north of Hope.

Access: By a gravel road about 5 miles long which leads from the Trans-Canada Highway 8 miles north of Hope to the mine plant at the 2600 level.

Owner: GIANT MASCOT MINES LIMITED, Seventh Floor, 1177 West Hastings Street, Vancouver 1; mine address, P.O. Box 1060, Hope; F. Holland, general manager; G. D. Bosnich, general superintendent; J. Hungle, mine superintendent; J. Wadsworth, assistant concentrator superintendent.

METALS: Nickel, copper (*see* Table 12 for production). Concentrates are sold to Sumitomo Metal Mining Co. of Canada Ltd. Concentrates were stockpiled and no shipments made from September 25th to November 7th owing to the longshoremen's strike.

WORK DONE:

A major cave which occurred in the Brunswick No. 2 stope November, 1968, rendered the uppermost section of the shaft unsafe. A heavy bulkhead was installed between the 3400 level and the 3550 level, and the 3400 became the topmost level serviced by the shaft. A service raise was driven from 3400 to 3550 adjacent to the shaft.

The old ore-pass adjacent to the shaft, which had been deteriorating due to erosion, was abandoned and was backfilled from the 2600 to the 2950 levels. A new ore-pass system was developed in the footwall of the 4600 ore zone and was put into service.

There have been no indications of further caving in the area of the Brunswick No. 2 stope. A considerable amount of water entered the mine through the caved area during the spring runoff. Ditching on surface has successfully diverted further runoff around the caved area.

Production during 1969 was continuous from the 1500 orebody from stopes above the 2900 scraper drift. The broken ore was drawn on the 2600 level. The stope was drawn empty during December and production was started from the 1500 footwall zone above 2600 level. The 4600 ore zone, A, B, and C Blocks, was developed and brought into production on the 2950 and 3250 levels. The 4300 orebody was prepared for production on the 3250 level. A minor amount of production was obtained from the BR 5 stope on 3250 level. There was no production from the 3550 level.

A new adit was started at elevation 3,150, to explore and develop the upward extension of the 2200 zone, the Chinaman zone, and the 1800 zone. The adit is being driven with a self-propelled Atlas Copco jumbo, and the broken rock is being removed with a new Eimco 915 load-haul dump unit.

Introduction of this equipment was a step in a planned programme of updating mining methods. Other new equipment purchased and used during the year included an Alimak STH-3, which was used to drive extensions of the ore-pass system, 15 new lightweight 100-cubic-foot cars which were put into service on the 2600 level main haulage, and one new 25-horsepower electric diamond drill.

A summary of development work done in 1969 is as follows:—

	Feet
Drifting and crosscutting	3,915
Raising (conventional)	4,738
Blast-hole drilling	213,934
Diamond drilling	62,314

An extensive exploration programme of underground diamond drilling has been initiated.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1954, p. 161; 1964, p. 137; 1965, p. 213; 1966, p. 58; 1967, p. 63; 1968, p. 76.

BEA, GIANT, SWEDE (No. 602, Fig. 33)

LOCATION: Lat. 49° 25′–29′ Long. 121° 26′–32′ (92H/5E, 6W)
Two to 6 miles north of Hope, at 750 to 3,000 feet elevation.

CLAIMS: BEA, GIANT, SWEDE, MARY G, PUFF, PAT, MILL, and miscellaneous fractions, 154 claims and fractions.

Access: By road, 1 to 6 miles from Hope.

Owner: KELSO EXPLORATIONS LTD., 411, 470 Granville Street, Vancouver 2.

Metals: Nickel, copper.

Work Done: The claims and surface workings were surveyed and topographic maps were made. A geological survey was carried out on the SWEDE, GIANT, BEA, P, and MARY G claims. Geophysical work included 3½ line-miles of gravity survey on the GIANT 25 and SWEDE 5 to 7 claims and 6 line-miles of magnetometer survey on the SWEDE 1 to 7 and MILL 3 to 6 claims. Approximately 905 soil samples were collected from the GIANT, BEA, PAT, and MARY G claims. Three bulldozer trenches totalling 1,800 feet in length were cut and a small amount of stripping was done. Two and one-half miles of road was constructed on the property and six AX holes totalling 554 feet were diamond drilled. The work was supervised by P. Connell.

References: *Minister of Mines, B.C.*, Ann. Repts., 1965, p. 217; 1966, p. 60; Assessment Reports Nos. 963, 1032, 1085, 1251, 1593, 1679, 1698A to D, 1801, 1869, 1992, 1998, 2031, 2099, 2180, and 2204.

Description: *See* Minister of Mines and Petroleum Resources Annual Report for 1965, page 217.

CLOVER LEAF (No. 658, Fig. 33)

Location: Lat. 49° 21.5′ Long. 121° 37′ (92H/5E)

About 1 mile upstream from the mouth of Ruby Creek and about 8 miles west of Hope.

Claims: CLOVER LEAF 1 to 4.

Access: By logging-road, 1 mile from Ruby Creek station.

Owners: J. White and W. E. Harvey.

Operator: BLACK MASTODON MINERALS LTD., 3450 West 35th Avenue, Vancouver 16.

Metals: Gold, silver, nickel, copper.

Work Done: Four packsack holes were drilled for a total depth of 80 feet.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 77.

Description: The mineralization is associated with a shear zone deposit of talc in serpentine.

DIANE (No. 663, Fig. 33)

Location: Lat. 49° 18.7′ Long. 121° 37′ (92H/5E)

On the east side of Wahleach Creek, three-quarters of a mile above Fraser River.

Claims: DIANE 1 to 7.

Access: By road, one-half mile from Laidlaw.

Owner: ALMAZA MINING CO. LTD., 3797 Kingsway, Burnaby 1.

Metal: Gold.

Work Done: An adit was driven a distance of 40 feet.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 82.

EUREKA, VICTORIA (No. 693, Fig. 33)

By J. W. Robinson

Location: Lat. 49° 18.5′ Long. 121° 27.5′ (92H/6W)
On the northeast side of Isolillock Peak, south of Hope.

Claims: GREY COPPER, ALFIE, Crown-granted Lot 25, MO 1 to 20.

Access: From Highway No. 1 at Silver Creek by forestry access roads and then by 1½ miles of difficult new road built in 1968 to the bottom adit of the Eureka. Then by steep new road built in 1969 to the bottom adit of the Victoria.

Owner: HOLY CROSS MOUNTAIN MINES LTD., 1001, 837 West Hastings Street, Vancouver 1.

Metal: Silver.

Work Done: The bottom adit of the EUREKA was advanced 430 feet during the summer and 218 feet of 6- by 7-foot crosscuts were driven. Total footage in the EUREKA adit is 1,130 feet, including the six crosscuts. The bottom adit on the VICTORIA claim was collared and advanced for 21 feet. The first 11 feet of the portal were timbered. Snow clearing on the road was begun in May and work was terminated because of snow on October 15th. Six men were employed for six months under the direction of A. Aalde.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 78.

SKAGIT RIVER

AM (No. 691, Fig. 33)

By J. W. Robinson

Location: Lat. 49° 09.8′ Long. 121° 01.3′ (92H/3E)
Near the western boundary of Manning Park.

Claims: Approximately 170 full size and fractional claims.

Access: Via the Hope–Princeton highway from Hope a distance of 31 miles; thence 3 miles south by mine road.

Owner: Giant Mascot Mines Limited (formerly owned by Canam Copper Company Ltd.).

Operator: G. M. EXPLORATIONS LIMITED, Seventh Floor, 1177 West Hastings Street, Vancouver 1; F. Holland, general manager; B. Wodin, property superintendent.

Metals: Copper, silver, molybdenum.

Work Done:

Detailed geological surface mapping was carried out over the main breccia zone in an area 3,000 by 4,000 feet. The Nos. 1, 4, 6, 7, and 10 levels, along with the 10-06 raise, were remapped geologically. The core from 56 diamond-drill holes was relogged. Geochemical surveys, transit and tape surveys, and electromagnetic surveys were carried out.

The roads were improved and a new road was built for 2 miles up Twenty-six Mile Creek. About 4,000 feet of trenching was done with a D-8 bulldozer.

The No. 15 level portal and dump trestle were reconstructed. All preparatory work for the resumption of underground activity has been completed.

The buildings of the original camp-site near the 15-level portal were close to a small slide or snow chute. A new camp-site was prepared at a point approximately one-third of a mile from the Hope–Princeton highway. A complete 18-man camp, expandable to 42-man capacity, has been established.

On 10 level a 37.5-kva. diesel-driven generator and a 10-horsepower mine-ventilating fan were installed. At the main shop on 15 level a 190-kva. diesel-driven generator was installed. Two air compressors driven by 120-horsepower electric motors were installed. A 100-kw. diesel-driven generator was installed for camp power.

REFERENCES: Kents, Paul, 1964, *Econ. Geol.*, Vol. 59, pp. 1551–1563; *Minister of Mines, B.C.*, Ann. Repts., 1965, pp. 206–212; 1968, p. 78.

NANAIMO MINING DIVISION

PORT HARDY-COAL HARBOUR

AIRD (No. 712, Fig. 33)

LOCATION: Lat. 50° 44.5′ Long. 128° 12.5′ (102I/9E, 16E)
One-half mile north of the north end of William Lake, at 300 to 500 feet elevation.

CLAIMS: AIRD 1 to 20.

ACCESS: By float-equipped plane from Port Hardy to William Lake, a distance of 35 miles, or by logging-roads from Port Hardy.

OWNER: UTAH CONSTRUCTION & MINING CO., 718, 510 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: The claims were mapped topographically and geologically and a geochemical soil survey was made. Approximately 520 samples were taken over 18 line-miles.

REFERENCE: Assessment Report. No. 1909.

DESCRIPTION: Chalcopyrite occurs as disseminations and vein-fillings in carbonatized and silicified volcanic rocks.

CS (No. 710, Fig. 33)

LOCATION: Lat. 50° 41′–51′ Long. 128°04.5′–18′ (102I/9E, 16E, 16W)
The property covers an area of approximately 50 square miles in the Cape Scott area, at the extreme northwest tip of Vancouver Island.

CLAIMS: Approximately 900 CS claims.

ACCESS: By helicopter from Port Hardy, 35 miles to the southeast by float-equipped plane to William Lake, which is located within the claims, or by a new logging-road to within one-half mile of the southern edge of the main claim block. This road connects with Holberg and Port Hardy. The northern edge of the main claim block may be reached by sea, although no good natural harbours exist.

OWNER: QUINTANA MINERALS CORPORATION, 1215, 555 Burrard Street, Vancouver 1.

METALS: Copper, iron.

WORK DONE: An area of 70 square miles was mapped geologically and approximately 3,750 soil and rock-chip samples were taken for analysis.

REFERENCE: Assessment Report No. 1847.

DESCRIPTION: Mineralization occurs as (1) pyrometasomatic copper-iron deposits in the Karmutsen volcanics near the mouth of Stranby River, and (2) quartz-sulphide fracture veins east and north of William Lake.

A, H (No. 635, Fig. 33)

Location: Lat. 50° 45′ Long. 128° 04′ (102I/9E, 16E)
Seven miles north-northwest of Holberg, at 500 to 1,500 feet elevation.

Claims: A 1 to 51, 54 to 63; H 1 to 10.

Access: By foot from logging-roads along the Stranby River or by helicopter.

Owner: M. Gibbeson.

Operators: R. H. D. PHILP and M. GIBBESON, c/o 201, 714 West Hastings Street, Vancouver 1.

Work Done: Geochemical and geological surveys were conducted over A 1 to 15 and H 1 to 10 claims. R. H. D. Philp was in charge.

Reference: Assessment Report No. 2072.

AAA (No. 711, Fig. 33)

Location: Lat. 50° 42.5′ Long. 128° 02′ (102I/9E)
Four miles north-northwest of Holberg.

Claims: AAA 1 to 50.

Access: By logging-roads from Holberg.

Owner: SPARTAN EXPLORATIONS LTD., 303, 1035 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: Geological and geochemical surveys.

References: Assessment Reports Nos. 1865A and 1865B.

Description: Bornite and malachite are disseminated in quartz-filled fractures in Karmutsen volcanics.

TI, MOM, BUD (No. 709, Fig. 33)

Location: Lat. 50° 43′ Long. 127° 55′ (92L/12W)
Two miles west of Nahwitti Lake, at approximately 1,200 feet elevation.

Claims: TI 1 to 34, 40 to 53; MOM 1 to 5; BUD 1.

Access: Approximately 20 miles from Port Hardy by the Nahwitti Lake access road.

Operator: ACHERON MINES LTD., 201, 714 West Hastings Street, Vancouver 1.

Metals: Copper, zinc.

Work Done: The claims were surveyed by chain and compass and reconnaissance and detailed geochemical surveys were made on claims in the southwest portion of the property. T. Holcapek, in charge.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 96; Assessment Report No. 1762.

CEE, KAYE, JACK (No. 706, Fig. 33)

Location: Lat. 50° 39′ Long. 127° 56′–128° 04′ (92L/12W, 102I/9E)
Southwest side of the head of Holberg Inlet.

Claims: CEE, KAYE, JACK, RUSH, RICK, JILL, MAY, LUCKY, LORI, and FLATS, a total of 148 claims.

Access: By logging-roads from Port Hardy to the logging-camp at the head of Holberg Inlet.

Operator: HOLBERG MINES LTD., 103, 709 Dunsmuir Street, Vancouver 1.

Work Done: An airborne magnetometer survey of 171 line-miles, covering the entire claim area.

Reference: Assessment Report No. 1765.

EXPO (No. 668, Fig. 33)

Location: Lat. 50° 36′–43′ Long. 127° 41′–128° 00′ (92L/12W, 12E)
Between the north side of Holberg Inlet and Nahwitti Lake.

Claims: EXPO, DON, and HEP, 721 in all.

Access: Accessible on the west end by logging-road from Holberg, otherwise by helicopter 10 to 25 miles from Port Hardy.

Owner: UTAH CONSTRUCTION & MINING CO., 412, 510 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: The location-lines of approximately 30 claims were surveyed. Geological and geochemical surveys were made on 460 claims. About 9,500 soil samples were taken for analysis. An induced polarization survey of 5 line-miles was done, mostly on HEP claims, and 18 holes totalling 3,566 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 96; Assessment Reports Nos. 1621 and 2190.

KW, H (No. 705, Fig. 33)

Location: Lat. 50° 37.5′ Long. 127° 46.5′–53′ (92L/12W)
On the north side of Holberg Inlet, from 8½ to 15 miles west of Coal Harbour.

Claims: KW 11 to 16, 39 to 96; H 1 to 32.

Access: By boat from Coal Harbour or Holberg, or by float-equipped plane from Port Hardy.

Operators: D. K. BRAGG and D. W. TIBBOTT, 3567 West 27th Avenue, Vancouver 8.

Metal: Copper.

Work Done: A geological survey of 32 line-miles and a geochemical soil survey were made on the KW 57 to 89 claims. Approximately 800 samples were collected and analysed. D. K. Bragg, in charge.

Reference: Assessment Report No. 1929.

Description: Chalcopyrite is disseminated in volcanic rocks.

LUK (No. 644, Fig. 33)

Location: Lat. 50° 43′ Long. 127° 38′ (92L/12E)
Six miles due west of Port Hardy.

Claims: LUK 1 to 48.

Access: By road, 7 miles from Port Hardy.

Owner: Arthur Clemiss.

Operator: SECONDO MINING LTD., 700, 1177 West Hastings Street, Vancouver 1.

Work Done: Fourteen line-miles of magnetometer survey on the LUK 1 to 28 claims.

Reference: Assessment Report No. 1818.

M (No. 636, Fig. 33)

LOCATION: Lat. 50° 41′ Long. 127° 38′ (92L/12E)
Two miles south of the east end of Kains Lake.

CLAIMS: M 1 to 21.

ACCESS: Via Holberg and O'Connor's roads, 8 miles from Port Hardy.

OWNER: METEOR MINING CO. LTD., 574 Yates Street, Victoria.

METAL: Copper.

WORK DONE: A geochemical survey of the claims, 391 soil samples having been collected for analysis. D. C. Malcolm, supervisor.

REFERENCE: Assessment Report No. 2068.

DESCRIPTION: Chalcopyrite and pyrite occur in sedimentary rocks along andesite dyke contacts and near diorite intrusives.

DEB (No. 653, Fig. 33)

PROPERTY: Lat. 50° 40′–42′ Long. 127° 29′–33′ (92L/11W, 12E)
On Dick Booth Creek, 2½ miles southwest of Port Hardy.

CLAIMS: DEB 1 to 115.

ACCESS: By logging-roads from the Port Hardy–Nahwitti Lake and Port Hardy–Coal Harbour roads.

OWNER: UTAH CONSTRUCTION & MINING CO. LTD., 412, 510 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: A geochemical survey was made and 14 holes totalling 1,676 feet were diamond drilled. R. C. Johnson was in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 91; Assessment Reports Nos. 1671A, 1671B, 1671C, and 2104.

ACE, BETA (No. 630, Fig. 33)

LOCATION: Lat. 50° 38.5′ Long. 127° 32.5′ (92L/12E)
Northeast end of Quatse Lake, 6 miles south-southwest of Port Hardy.

CLAIMS: ACE 6, BETA 2 to 5.

ACCESS: Seven miles by road from Port Hardy via Port Hardy–Coal Harbour and old Quatse Lake roads.

OWNER: Cominco Ltd.

OPERATOR: BRETTLAND MINES LTD., 909, 789 West Pender Street, Vancouver 1.

WORK DONE: Approximately 10 line-miles of magnetometer survey on parts of the BETA claims and three diamond-drill holes totalling 650 feet. F. Brett, in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 91; Assessment Report No. 1060.

GB No. 2 GROUP (No. 677, Fig. 33)

LOCATION: Lat. 50° 39.5′ Long. 127° 31.5′ (92L/12E)
Two miles northeast of the east end of Quatse Lake.

CLAIMS: GB 15 to 30, 69, 70, 77 to 80.

ACCESS: By logging-roads from the Port Hardy–Coal Harbour road.

OWNER: TRO-BUTTLE EXPLORATION LIMITED, 913, 1030 West Georgia Street, Vancouver 5.

Metals: Copper, zinc, molybdenum.

Work Done: Geological and magnetometer surveys.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 93; Assessment Reports Nos. 1732 and 2156.

GB No. 1 GROUP (No. 676, Fig. 33)

Location: Lat. 50° 38′ Long. 127° 32′ (92L/12E)
Immediately east of Quatse Lake, 6 miles south-southwest of Port Hardy.

Claims: GB 2, 4, 6, 7, 9 to 12.

Access: By four-wheel-drive vehicle via logging-roads from the Port Hardy–Coal Harbour road.

Owner: TRO-BUTTLE EXPLORATION LIMITED, 913, 1030 West Georgia Street, Vancouver 5.

Metals: Copper, zinc.

Work Done: Geological and magnetometer surveys.

References: *Minister of Mines, B.C.,* Ann. Repts., 1968, p. 92; Assessment Reports Nos. 1731 and 2155.

GUB, TAB (No. 629, Fig. 33)

Location: Lat. 50° 39′ Long. 127° 30′ (92L/11W, 12E)
Five miles south of Port Hardy.

Claims: GUB 1 to 20, TAB 1 to 20.

Access: From Port Hardy, 5 miles by road.

Owner: BRETTLAND MINES LTD., 909, 789 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: One diamond-drill hole was attempted, but was abandoned because of deep overburden. F. Brett, supervisor.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 90; Assessment Report No. 1692.

ISLAND COPPER (formerly BAY) (No. 702, Fig. 33)

By W. C. Robinson

Location: Lat. 50° 36′ Long. 127° 28.5′ (92L/11W)
Between sea-level and 500 feet elevation, on the north side of Rupert Inlet.

Claims: One hundred and eighty recorded claims, including the BAY, COVE, RUPERT, JIM, and ART groups.

Access: Ten miles by road from Port Hardy.

Owner: UTAH CONSTRUCTION & MINING CO., 412, 510 West Hastings Street, Vancouver 2; mine office, Port Hardy; M. E. Pratt, manager; R. N. Hickman, mine superintendent.

Metals: Copper, molybdenum.

Work Done: Clearing of merchantable timber from a proposed plant-site was started during 1969 and an access road was built to the property. Other work included excavation for a barge-unloading grid, preparation of a construction camp-site, and 27,953 feet of diamond drilling. At the end of the year 34 men were employed.

References: *Minister of Mines, B.C.,* Ann. Repts., 1967, p. 68; 1968, p. 88; Assessment Reports Nos. 710, 731, and 738.

DEM (No. 678, Fig. 33)

LOCATION: Lat. 50° 34′ Long. 127° 30′ (92L/11W, 12E)
On the south side of Rupert Inlet, 3½ miles southeast of Coal Harbour.

CLAIMS: DEM 1 to 14, 24 to 54.

ACCESS: By boat from Coal Harbour.

OWNER: Hardy Minerals Ltd.

OPERATOR: PATHFINDER URANIUM & NICKEL MINES LTD., 602, 789 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Detailed geological and geochemical surveys on the north central claims and reconnaissance geological and geochemical surveys on the northeast claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1910, p. 153; Assessment Reports Nos. 1717 and 2133.

DESCRIPTION: Chalcocite- and bornite-bearing quartz-calcite veins occur in Karmutsen volcanics near the contact with Quatsino limestone.

HAR, EXPO (No. 643, Fig. 33)

LOCATION: Lat. 50° 34.5′ Long. 127° 24′ (92L/11W)
At the southeast end of Rupert Inlet.

CLAIMS: HAR 1 to 9, 11, 13, 15, 17 to 44; HAR Fraction; EXPO 1 to 18.

ACCESS: By road, 13 miles south from Port Hardy.

OWNER: Riviera Mines Limited.

OPERATOR: P.D. MINES LIMITED, 404, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Six line-miles of induced polarization survey on the HAR claims.

REFERENCE: Assessment Report No. 1681.

DESCRIPTION: Chalcopyrite and pyrite occur as disseminations in volcanic and acid intrusive rocks.

KOERNER, SAUCE (No. 666, Fig. 33)

LOCATION: Lat. 50° 36′ Long. 127° 15′ (92L/11E, 11W)
From 1 mile east of Rupert Inlet to Port McNeill.

CLAIMS: The property comprises 43 square miles of Crown-granted lands and 18 SAUCE claims.

ACCESS: By logging-roads, from Port Hardy or Port McNeill.

OWNER: I. Shulman, under agreement with W. Koerner.

OPERATOR: NEWMONT MINING CORPORATION OF CANADA LIMITED, 604, 744 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Induced polarization and magnetometer surveys totalling 20 line-miles were run in areas 3 miles northeast and 3 miles southeast of the east end of Rupert Inlet. One hole collared 2 miles northeast of the east end of Rupert Inlet was diamond drilled to a depth of 780 feet. R. Sheldon was in charge.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 97.

QUATSINO SOUND

KAINS POINT

KAINS (No. 659, Fig. 33)

LOCATION: Lat. 50° 28′ Long. 128° 02.5′ (102I/8E)
Kains Point, south of Winter Harbour.

CLAIMS: KAINS 1 to 16.

ACCESS: By boat, 3½ miles from Winter Harbour.

OWNER: UTAH CONSTRUCTION & MINING CO., 412, 510 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: The surface workings were mapped and geological and geochemical surveys were made on the claims. Approximately 440 soil samples were collected and analysed. K. B. McHale, supervisor.

REFERENCE: Assessment Report No. 1957.

DESCRIPTION: Chalcopyrite and pyrite occur in chloritized andesite.

MAHATTA RIVER

BRAD (No. 669, Fig. 33)

LOCATION: Lat. 50° 20′ Long. 127° 41′ (92L/5E)
Three miles northeast of the east end of Klaskino Inlet.

CLAIMS: BRAD 1 to 32.

ACCESS: By float-equipped plane, 25 miles from Port Hardy.

OWNER: UTAH CONSTRUCTION & MINING CO., 412, 510 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: A geological survey, 3 line-miles of induced polarization survey, and a geochemical survey were made on the claims. Approximately 600 soil samples were collected and analysed. G. A. Noel, supervisor.

DESCRIPTION: Chalcopyrite occurs in skarn.

NEROUTSOS INLET

STAR (No. 656, Fig. 33)

LOCATION: Lat. 50° 23′ Long. 127° 31′ (92L/5E)
From 2½ miles up Teeta Creek to the mouth on Neroutsos Inlet.

CLAIMS: STAR, 1, 3, 5, 7 to 15, 21 to 32; Nos. 1 to 4 Fractions, BOY 1 and 2, 31 in all.

ACCESS: By boat and tote-road, 4 miles from Jeune Landing.

OWNER: NEWMONT MINING CORPORATION OF CANADA LIMITED, 604, 744 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: A geological survey of STAR 9, 11, 13, and 22 to 30 claims; R. F. Sheldon, supervisor.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 99.

RH, ELK, ECHO, CAM (No. 728, Fig. 33)

LOCATION: Lat. 50° 17.5′ Long. 127° 32′ (92L/5E)
At the head of Colonial Creek, 5 miles southwest of the south end of Neroutsos Inlet, at 2,500 feet elevation.

CLAIMS: RH 1 to 24, ELK 1 to 8, ECHO 1 to 6, CAM 1 to 20.

Access: By helicopter, 30 miles south from Port Hardy.

Owner: CAMBRIDGE MINES, LIMITED, 420 Howe Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: The RH 8 to 11 and CAM 1 to 3 claims were mapped geologically and a geochemical soil survey was made on RH 8 to 11 claims. About 520 samples were collected and analysed. Eight trenches, total length 108 feet, and 37 pits, average depth 2 feet, were made. N. N. Thompson, in charge.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 99.

Description: The mineralization occurs mainly as fracture-fillings in granitic and volcanic rocks. Some showings occur as replacements in limestone.

Alice Lake

CLANCY (ALICE LAKE, PEERLESS, PILGRIM) (No. 704, Fig. 33)

Location: Lat. 50° 26′ Long. 127° 25′ (92L/6W)
On the southwest side of Alice Lake.

Claims: CLANCY, CLANCY 2 to 8, O CLANCY, L 1 to 8, AJ 1 to 30, 1 to 4 Fractions, AJAX 1 to 12, and the Crown-granted claims IRON KNOB (Lot 184), JUNE (Lot 180), HELEN (Lot 181), AMAZON (Lot 182), OLGA (Lot 183), and CATHERINE (Lot 2034).

Access: By logging-roads, 2 miles from the Port McNeill–Jeune Landing road.

Owner: ALICE LAKE MINES LIMITED, 327, 736 Granville Street, Vancouver 2.

Metals: Gold, silver, copper, lead, zinc, iron.

Work Done: An airborne magnetic, electromagnetic, and radioactivity survey was flown over 66 line-miles, spacing 500 feet, covering an area 16,000 by 11,000 feet.

References: *Minister of Mines, B.C.*, Ann. Repts., 1903, pp. 201, 202; 1916, pp. 341–343; 1924, p. 228; 1929, p. 378; 1930, p. 296; 1931, p. 170; 1932, p. 206; Assessment Reports Nos. 502 and 1885.

Benson River

OLD SPORT MINE (No. 701, Fig. 33)

By W. C. Robinson

Location: Lat. 50° 23′ Long. 127° 14.5′ (92L/6E)
South end of Benson Lake, on the west side of Benson River.

Claims: Forty-eight Crown-granted claims, 16 recorded claims, and one mineral lease.

Access: By 26 miles of road from Port McNeill.

Owner: COAST COPPER COMPANY LIMITED (controlled by Cominco Ltd.), Port McNeill; J. D. Wilkins, property superintendent.

Metals: Copper, iron (*see* Table 12 for production).

Work Done:

Drifting and crosscutting, 6,686 feet; subdrifting, 1,112 feet; raising, 4,321 feet; diamond drilling, 25,705 feet. An 8- by 22-foot decline, being driven at minus 14 degrees and equipped with a conveyor system, was advanced 1,750 feet during 1969. At the end of the year the face of the decline was 5,744 feet from the portal. The entire mine production was transported through the decline.

Five conveyors have been installed in No. 1 decline, a 1,000-kva. substation was installed on 4700 level, a 200-kva. substation was installed on 4700 level, and three 60-horsepower Woods fans were installed for ventilation. At No. 2 decline, three 333-kva. 6,900–550-volt transformers were installed to supply a 200-horsepower ventilation fan. Three 375-kva. transformers were installed to supply the Empire camp residents. Two of the three Fairbank Morse diesel-driven generators from the Empire mine have been installed at the Benson Lake camp for standby units. Three 375-kva. 6,900–550-volt transformers were also installed. For the mill an addition increased the pump load by 15 horsepower and the flotation load by 30 horsepower.

MAGNETIC, MAYNARD, IRON (No. 648, Fig. 33)

LOCATION: Lat. 50° 18.5′–23.5′ Long. 127° 12.8′–13.6′ (92L/6E)
On Benson River, east of Merry Widow Mountain.

CLAIMS: The individual MAGNETIC, MAYNARD, IRON, TROUT, BLUE OX, and RAINY claims and claims of the same names numbered 2 to 8, a total of 48.

ACCESS: By road, 20 miles south from Port McNeill, or by air 25 miles southeast from Port Hardy.

OWNERS: A. H. AINSWORTH and QUATSINO COPPER-GOLD MINES LTD., 326, 736 Granville Street, Vancouver 2.

WORK DONE: An airborne magnetic, electromagnetic, and radioactivity survey was flown over a total of 66 line-miles, covering an area of 26,500 by 6,000 feet. H. Cohen was in charge.

REFERENCE: Assessment Report No. 1760.

PORT McNEILL

NOR (No. 652, Fig. 33)

LOCATION: Lat. 50° 31′ Long. 127° 07.5′ (92L/11E)
Four miles south of Port McNeill.

CLAIMS: NOR 1 to 26.

ACCESS: By logging-roads, 5 miles from Port McNeill.

OWNER: ENSBROOK MINES LTD., 34, 448 Seymour Street, Vancouver 2.

WORK DONE: Geological and geochemical surveys.

REFERENCE: Assessment Report No. 2098.

TIE, SUSAN (No. 703, Fig. 33)

LOCATION: Lat. 50° 35′ Long. 127° 17.5′ (92L/11W)
On the Jeune Landing road, 9 miles due west of Port McNeill.

CLAIMS: TIE 2 to 6, 13, and 14; SUSAN 1 to 16; IAN 1 to 12; GGB 1 to 32, a total of 67.

ACCESS: By road, 1 mile south from the Port Hardy–Port McNeill road.

OWNERS: Cominco Ltd. and MacMillan Bloedel Ltd.

OPERATOR: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: The SUSAN 3, GGB 14 to 16 and 27 to 30 claims were mapped geologically. A magnetometer survey of 14 line-miles, an induced polarization survey of 12 line-miles, and a geochemical survey were done on SUSAN 1 to 16, TIE 2 to 6, 13 and 14, and IAN 1 to 10 claims. Two holes, totalling 648 feet, were diamond drilled. S. J. Pedley, in charge.

REFERENCES: Assessment Reports Nos. 1907 and 2273.

ED (No. 605, Fig. 33)

LOCATION: Lat. 50° 31′ Long. 127° 14′ (92L/11E)
Seven and one-half miles southwest of Port McNeill.
CLAIMS: ED 1 to 44; BOB 1 to 20, 22 to 30; MIKE 1 to 22, 26 to 53.
ACCESS: Fourteen miles by road, southwest from Port McNeill.
OPERATOR: ARLINGTON SILVER MINES LTD., 1110, One Bentall Centre, 505 Burrard Street, Vancouver 1.
WORK DONE: Magnetic, electromagnetic, and geochemical surveys were conducted over most of the ED claims, and an aeromagnetic survey was flown covering all claims.
REFERENCE: Assessment Report No. 1943.

MIKE, BOB (No. 614, Fig. 33)

LOCATION: Lat. 50° 28′–30′ Long. 127° 09′–14′ (92L/6E)
Eight miles southwest of Port McNeill, at approximate elevation of 1,000 to 2,500 feet.
CLAIMS: A total of 79 MIKE and BOB claims.
ACCESS: By 14 miles of gravel road from Port McNeill. The road is private, being maintained by Cominco Ltd.
OWNERS: LARGO MINES LTD. and GREAT NORTHERN PETROLEUM & MINES LTD., 1110, One Bentall Centre, Vancouver 1.
WORK DONE: A magnetometer survey involving 1,420 readings and a geochemical survey comprising 960 soil samples were carried out in the Keogh and Angler Lakes area.
REFERENCES: Assessment Reports Nos. 1982A and 1982B.

BONANZA LAKE

BON (No. 628, Fig. 33)

LOCATION: Lat. 50° 15′–17′ Long. 126° 39′–43′ (92L/7E)
Five miles southeast of Bonanza Lake, at 2,800 feet elevation.
CLAIMS: BON 1 to 58, 101 to 110.
ACCESS: Thirty-five miles from Port McNeill by road and trail.
OWNER: BRETTLAND MINES LTD., 909, 789 West Pender Street, Vancouver 1.
METALS: Iron, copper.
WORK DONE: An airborne magnetometer survey covering 72 line-miles over the BON 1 to 40 claims was made and 13 diamond-drill holes totalling 1,400 feet were drilled. F. Brett, supervisor.
REFERENCE: Assessment Report No. 1821.

KELSEY BAY

ROONEY (No. 654, Fig. 33)

LOCATION: Lat. 50° 21.5′ Long. 126° 09′ (92L/8E)
Rooney Lake, 10 miles west-southwest of Kelsey Bay.
CLAIMS: ROONEY 1 to 28.
ACCESS: By truck, 12 miles from Sayward.
OPERATOR: NEWCONEX CANADIAN EXPLORATION LTD., 806, 525 Seymour Street, Vancouver 2.
METAL: Copper.

Work Done: A geochemical survey was conducted over ROONEY 1 to 8 claims. Sixteen rock-chip samples and 500 soil and silt samples were collected and analysed. P. W. Richardson and A. J. Teed, supervisors.

Reference: Assessment Report No. 1859.

Description: Chalcopyrite and bornite are disseminated in amygdaloidal basalt.

BOYES (No. 612, Fig. 33)

Location: Lat. 50° 17.5′ Long. 126° 03′ (92L/8E)
On the west side of Adam River, 2 miles southwest of Keta Lake, at 1,000 to 3,500 feet elevation.

Claims: One hundred and fifty, comprising the BOYES, GEO, BRUCE, KEVIN, DENNIS, TAMMY, and H groups.

Access: By road, 8 miles from Kelsey Bay.

Owner: Western Standard Silver Mines Ltd.

Operator: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: The surface workings were mapped. A geological survey, 10 line-miles of magnetometer survey, and a geochemical survey comprising 324 samples were conducted over the GEO and BOYES claims. Three trenches totalling 142 feet were made and two BQ holes totalling 473 feet were diamond drilled. The work was supervised by R. Anderson.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 72; 1968, p. 100; Assessment Report No. 1993.

Description: Chalcopyrite, chalcocite, copper carbonates, and bornite occur in veins and as disseminations in altered volcanic rocks.

CAM, DOC (No. 708, Fig. 33)

Location: Lat. 50° 14′ Long. 126° 02′ (92L/1E, 8E)
On Adam River, 6 miles south of Keta Lake.

Claims: Approximately 45 CAM and DOC claims.

Access: By logging-roads, 20 miles southwest from Sayward.

Owner: Adam River Mining Ltd.

Operator: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.

Metal: Copper.

Work Done: A photogrammetric map was made and the surface workings were mapped. A helicopter magnetometer survey was flown over 60 line-miles, an induced polarization survey was run over 10 line-miles, and 350 soil samples were taken for analysis. Fifteen pits were dug and three holes totalling 1,500 feet were diamond drilled. G. Warren, in charge.

Description: Bornite and chalcopyrite occur as seams and disseminations in fracture zones in andesite.

WR (No. 667, Fig. 33)

Location: Lat. 50° 09.5′ Long. 125° 59.5′ (92K/4W)
On White River, 11 miles above its confluence with Salmon River.

Claims: WR 1 to 10, WR Fraction.

Access: By truck, 14 miles south from Sayward.

OWNER: NEWCONEX CANADIAN EXPLORATION LTD., 806, 525 Seymour Street, Vancouver 2.

METAL: Copper.

WORK DONE: Part of the claims were surveyed by chain and compass and the surface workings were mapped. Approximately 180 soil, silt, and rock-chip samples were taken for analysis and three trenches totalling 67 feet in length were made in bedrock. P. Richardson and A. Teed were in charge.

DESCRIPTION: Chalcopyrite and bornite are disseminated in amygdaloidal basalt.

McCREIGHT LAKE

BEAR (No. 618, Fig. 33)

LOCATION: Lat. 50° 20.5′ Long. 125° 42.5′ (92K/5E)
Four miles northwest of McCreight Lake, at 500 to 2,500 feet elevation.

CLAIMS: BEAR 1 to 24.

ACCESS: By logging-road, 11½ miles from Campbell River–Kelsey Bay highway.

OWNER: VANCO EXPLORATIONS LIMITED, 900, 1111 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Reconnaissance magnetometer and geochemical surveys were made and a detailed geochemical survey was conducted over 7½ line-miles on the BEAR 1 to 9 and 12 claims. Approximately 590 soil samples were taken for analysis. The work was supervised by T. E. Lisle.

DESCRIPTION: Minor disseminations of chalcopyrite occur in Karmutsen basic volcanics.

MENZIES BAY

CHAL (No. 647, Fig. 33)

LOCATION: Lat. 50° 09′ Long. 125° 25′ (92K/3W)
Three miles west of Seymour Narrows.

CLAIMS: CHAL 1 to 7, NORM 1 to 7, ALLEN 1 to 6, BB 1 to 6, STAR 1 to 6.

ACCESS: The property is on Route 19, 12 miles north of Campbell River.

OWNER: Calmac Mines Ltd.

OPERATOR: CASCO HOLDINGS LTD., c/o 401, 550 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: A rock and soil geochemical survey.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1959, p. 131; Assessment Report No. 2004.

QUADRA ISLAND

COPPER ROAD, LUCKY JIM (No. 655, Fig. 33)

LOCATION: Lat. 50° 13′ Long. 125° 17′ (92K/3W)
On the northwest side of Quadra Island.

CLAIMS: COPPER ROAD, LUCKY JIM, SUNRISE, SAXON, VIN, RIB, ALLRIGHT, LONDON, and others totalling 202.

ACCESS: By ferry from Campbell River to Quathiaski Cove; thence 15 miles by road.

OPERATOR: WESTERN MINES LIMITED, P.O. Box 8000, Campbell River.

METALS: Gold, silver, copper.

WORK DONE: An induced polarization survey of 1 line-mile was run on COPPER ROAD claims and four holes totalling 2,352 feet were diamond drilled. W. A. Padgham, supervisor.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1962, p. 95; 1968, p. 100.

COPPER BELL (No. 729, Fig. 33)

By W. C. Robinson

LOCATION: Lat. 50° 07.6' Long. 125° 16' (92K/3W)
On Quadra Island, about 2 miles northwest of Heriot Bay.

CLAIMS: COPPER BELL 1 to 6.

ACCESS: By road from the ferry terminus at Quathiaski Cove.

OWNER: QUADRA BELL MINING CO. LTD., 1161 South Murphy Street, Campbell River.

METAL: Copper.

WORK DONE: Three men were employed for five months. It was reported that 500 tons of copper-bearing material was mined by open-pit methods and a crusher installed during 1969.

COPPER HILL, COLLEEN (No. 730, Fig. 33)

LOCATION: Lat. 50° 07.2' Long. 125° 16.5' (92K/3W)
On Quadra Island, 3 miles west-northwest of Heriot Bay village.

CLAIMS: COPPER HILL 1 and 2, COLLEEN 1 and 2, EVELYN 1 to 3, BEAVER DAM 1 and 2, BIT 1 and 2, COPPER CLIFF, COPPER CLIFF 1 and 2 ALPHA to MU, a total of 26 (formerly worked under the names POMEROY, HERCULES, BARON, INGERSOLL, and STAR).

ACCESS: By road, 8 miles from Quathiaski Cove.

OPERATOR: LONRHO EXPLORATIONS LIMITED, 300, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: A portion of the surface workings was topographically mapped and 52 holes, total length 2,874 feet, were percussion drilled. In conjunction with an experimental leaching project, acidic solution was pumped from a 30,000-gallon barren-solution sump, at the site of the copper precipitation plant, through sprays onto a test heap. Pregnant solution from a 100,000-gallon sump at the base of the heap was siphoned to the mill for recovery of copper by cementation on iron. The 5,000-ton test heap, grading 0.6 per cent copper, was blasted from the surface showing. Economics were unfavourable and further test work on the low-grade ore was abandoned. F. P. Hodgson was in charge.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1953, pp. 163–165; 1964, p. 152; 1968, p. 100.

COURTENAY

MT. WASHINGTON COPPER (No. 607, Fig. 33)

LOCATION: Lat. 49° 46' Long. 125° 18' (92F/11E, 11W, 14W)
In the vicinity of Mount Washington, north of Courtenay, and lying between elevations of 1,300 and 4,500 feet.

CLAIMS: An area of 7,940 acres enclosing 178 located and four Crown-granted (DOMINEER) claims. The property is subject to lease agreement with Canadian Pacific Oil and Gas Limited.

ACCESS: By road, 15 miles from Courtenay.

Owner: Mt. Washington Copper Co. Ltd.

Operator: MARIETTA RESOURCES COMPANY LTD., 209, 475 Howe Street, Vancouver 1.

Metals: Copper, molybdenum, gold, silver.

Work Done: A geological survey covering the surface workings, a 14 line-mile electromagnetic survey, and a geochemical survey comprising 834 samples were carried out. Fifteen holes totalling 6,078 feet were diamond drilled. The work was performed on the Canadian Pacific Oil and Gas Limited Mineral Lease No. 2, an area of 12 square miles, under tthe supervision of W. G. Stevenson.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 101; Assessment Reports Nos. 1145 and 1691.

Description: *See* Minister of Mines and Petroleum Resources Annual Reports for 1964, page 155, and 1966, page 71.

FAITH, RIM (No. 613, Fig. 33)

Location: Lat. 49° 39.5′ Long. 125° 25′ (92F/11W)

Eighteen miles west of Courtenay, on the west side of Faith Lake, at an elevation of 4,300 to 4,700 feet.

Claims: FAITH 1 to 5, RIM 1 to 12.

Access: By helicopter from Campbell River, a distance of 25 miles.

Owner: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.

Work Done: Approximately 2½ line-miles of self-potential survey on the FAITH 2 and RIM 1 and 5 claims. J. J. McDougall, in charge.

Reference: Assessment Report No. 2053.

TEXADA ISLAND

TEXADA MINE (No. 687, Fig. 33)

By W. C. Robinson

Location: Lat. 49° 43′ Long. 124° 34′ (92F/10E)

The mine is at Welcome Bay on the southwest coast of Texada Island.

Access: Eight miles by road from Vananda.

Owner: TEXADA MINES LTD., P.O. Box 10, Gillies Bay; A. M. Walker, general manager.

Metals: Iron, copper (*see* Table 12 for production).

Work Done: Drifting and crosscutting, 7,590 feet; raising, 982 feet; diamond drilling, 30,818 feet. During 1969, preliminary work was done to develop the Anomaly A ore zone. The underground electrical circuits were extended in the mine. A sonic control system was installed on the grinding-mills.

SEEL, AB (No. 731, Fig. 33)

Location: Lat. 49° 35.5′ Long. 124° 21′ (92F/9W)

Along the southwest coast of Texada Island, from Cook Bay 5 miles northwestward.

Claims: SEEL 2 to 17, AB 1 to 64 (formerly the STROMBERG property).

Owners: Kitimat Copper Co. Ltd. and Cambrian Explorations Ltd.

Operator: CAMBRIAN EXPLORATIONS LTD., 1424, 355 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: A geochemical survey was made, most of the work being done on the SEEL claims in the extreme northwest portion of the property.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 101; Assessment Report No. 1932.

Description: Chalcopyrite occurs as minute discrete specks in augite porphyry.

VERN, WIN (No. 649, Fig. 33)

Location: Lat. 49° 42′ Long. 124° 25.5′ (92F/9W)

Claims: VERN 1 to 24, WIN 1.

Access: By road, 6 miles from Vananda.

Operator: KITIMAT COPPER CO. LTD., 1200 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: A topographic map of the property was made, 200 soil samples were collected and analysed, some bedrock was stripped, and one-quarter mile of road was constructed on the south side of Pocahontas Mountain. R. Seel, supervisor.

Description: Chalcopyrite is disseminated in volcanic rocks at a contact zone.

LASQUETI ISLAND

VENUS, ST. JOSEPH (No. 715, Fig. 33)

Location: Lat. 49° 30.5′ Long. 124° 20′ (92F/9W)
At the northwest end of Lasqueti Island, between Scottie Bay and False Bay.

Claims: Five Crown-granted claims, VENUS (Lot 81), ST. JOSEPH (Lot 50), ST. ANTHONY (Lot 51), AJAX (Lot 52), MARS (Lot 78), and 29 located claims, comprising the STRIKE, TIE, NEW ZONE, NEW MID, and NEW STRIKE groups.

Access: By passenger ferry, which runs twice daily between Parksville and False Bay.

Owner: SWEEPSTAKE MINES LTD., 204, 569 Howe Street, Vancouver 1.

Metals: Copper, gold, silver, zinc.

Work Done: An induced polarization survey of which 7 line-miles was reconnaissance and 1.5 line-miles was detailed.

References: *Minister of Mines, B.C.,* Ann. Repts., 1920, p. 213; 1933, p. 257; *Geol. Surv., Canada,* Sum. Rept., 1921, Pt. A, p. 50; Assessment Reports Nos. 950, 1241, 1716, and 1807.

Description: Chalcopyrite, chalcocite, bornite, pyrite, sphalerite, and magnetite occur in quartz veins in shear zones. The veins, at least five in number, are from 2 to 10 feet wide, strike approximately 30 degrees, and are associated with quartz diorite-basalt contacts. They occur over a width of approximately three-quarters of a mile and may be traced over distances of 1,000 feet to 1 mile. The deposits have been worked intermittently since the early 1900's under various names, including VENUS, ST. JOSEPH, JUNEAU, OLD BILL, NORTH STAR, ALADDIN, HILL 60, and OHM.

ALBERNI MINING DIVISION

KYUQUOT SOUND

KAS (CALEDONIA) (No. 707, Fig. 33)

Location: Lat. 50° 12.5′ Long. 127° 19.5′ (92L/3W)
On Kashutl River, 1½ miles from the head of Kashutl Inlet.

Claims: KAS 1 to 13.

Access: By float-equipped plane from Port Hardy, 35 miles to the north, or from Tahsis, 35 miles to the southeast.

Owner: VARGAS MINES LTD., 807, 850 West Hastings Street, Vancouver 1.

Metals: Iron, copper.

Work Done: Geological and geochemical surveys, mainly on KAS 1 to 6 claims.

References: *Minister of Mines, B.C.*, Ann. Rept., 1920, p. 202; *Geol. Surv., Canada,* Sum. Rept., 1920, Pt. A, p. 21; Assessment Reports Nos. 419 and 1926.

Description: Magnetite and chalcopyrite occur in skarn near intermediate to basic volcanics. Dioritic intrusives lie 1,000 feet to the southwest.

KYU (No. 657, Fig. 33)

Location: Lat. 50° 10.5′ Long. 127° 22′ (92L/3W)
Along Malksope River, from 2½ to 5½ miles above Malksope Inlet.

Claims: KYU, 35 in all.

Access: By road and trail, 4 miles from Kashutl Inlet.

Owner: Kyuquot Syndicate (Newmont Mining Corporation of Canada Limited and Bralorne-Canfer Resources Limited).

Operator: NEWMONT MINING CORPORATION OF CANADA LIMITED, 604, 744 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: The KYU 44 to 58 claims were mapped geologically and a regional stream sediment survey was made. An area of 900 square feet was stripped of overburden and six trenches totalling 160 feet were cut in bedrock. An adit was driven 12 feet, four holes totalling 261 feet were diamond drilled, and 3½ miles of trail was constructed up the Malksope River. The work was supervised by R. F. Sheldon.

ZEBALLOS

FL (No. 700, Fig. 33) By W. C. Robinson

Location: Lat. 50° 03′ Long. 126° 50′ (92L/2W)
At elevation 2,600 feet, on the west side of Zeballos River, 4 miles north of Zeballos.

Claims: Thirteen Crown-granted claims (Lots 1999 to 2011), the FL, EXTENSION, and FE claims, and two recorded claims, the CORDOVA and CORDOVA Fraction.

Access: By road from Zeballos.

Owner: ZEBALLOS IRON MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1; C. E. Gordon Brown, manager.

Metal: Iron (*see* Table 12 for production).

Work Done: The breaking of ore and waste was completed in 1968. Tramming out of broken ore was completed on June 13, 1969. Ore treatment was completed on June 26, 1969, and the last day of beach shipment was August 19, 1969. The road to the mine and the entrances to the mine have been blocked. The bridge, roads, and camp have been sold. The mill and the dock have been dismantled and removed.

References: *Minister of Mines, B.C.,* Ann. Repts., 1962, pp. 100–103; 1963, p. 101; 1967, p. 73; 1968, p. 102.

HESQUIAT

HESQUIAT, SATCHIE, BROWN JUG (No. 627, Fig. 33)

Location: Lat. 49° 30′ Long. 126° 23′ (92E/8W, 9W) East side of Hesquiat Lake.

Claims: Forty-nine in all, including the HESQUIAT, SATCHIE, BROWN JUG, ESTEVAN, and LAKE groups.

Access: By boat or plane, 30 miles from Tofino.

Owner: L. Hansen and Lindale Copper Mines Ltd.

Operator: AMERICAN SMELTING AND REFINING COMPANY, 535 Thurlow Street, Vancouver 5.

Metal: Copper.

Work Done: The surface workings and the geology of the claims were mapped. A magnetometer survey of 12 line-miles and a geochemical survey comprising 273 soil samples were carried out on the claims. L. Appelgate was in charge.

References: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 74; Assessment Reports Nos. 462, 464, and 2179.

Description: Disseminated and veined chalcopyrite and bornite occur in a skarn zone in volcanic rocks.

TOFINO

ORMOND, CONTACT (No. 639, Fig. 33)

Location: Lat. 49° 17.5′ Long. 126° 05′ (92E/8E) Southeastern Flores Island.

Claims: ORMOND 1 to 32, CONTACT, CONTACT 1 to 4.

Access: By boat, 13 miles from Tofino.

Owner: VAN-WEST MINERALS, LIMITED, 803, 1636 Haro Street, Vancouver 5.

Metals: Copper, zinc, silver, gold.

Work Done: Trenches and open cuts were bulldozed in overburden and an area of bedrock 1,500 feet square was stripped. L. Hansen was in charge.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 74.

PW, RW, JB (No. 674, Fig. 33)

Location: Lat. 49° 16′–18.5′ Long. 125° 56′–126° 02′ (92E/8E, 92F/5W) On the Catface Range peninsula, south of Herbert Inlet.

Claims: Thirty-eight PW claims, 10 RW claims, 9 JB claims, 12 W claims, 12 RH claims, 81 in all.

Access: By boat or float plane from Tofino, 12 miles to the southeast.

Owner: FORT RELIANCE MINERALS LIMITED, 25 Adelaide Street East, Toronto, Ont.

Work Done: A topographic map was prepared and geological and geochemical stream sediment and soil surveys were made.

Reference: Assessment Report No. 2116.

CAT, CYPRUS (No. 631, Fig. 33)

Location: Lat. 49° 12.5′ Long. 125° 54′ 125° 55′ (92F/4W, 5W)

On the eastern side of the Catface Range peninsula, and on Meares and Saranac Islands.

Claims: CAT, CYPRUS, BAY CREEK, ISLAND, and MEARES claims, 75 in all.

Access: Approximately 10 miles from Tofino by boat.

Owners: Lindale Copper Mines Ltd. and L. Hansen.

Operator: McINTYRE PORCUPINE MINES LIMITED, 312 409 Granville Street, Vancouver 2.

Metals: Gold, copper, molybdenum.

Work Done: Geological, self-potential, magnetometer, and geochemical surveys, and nine packsack drill-holes totalling 480 feet. J. W. MacLeod, supervisor.

MN (No. 600, Fig. 33)

Location: Lat. 49° 12′ Long. 126° 00′ (92E/1E, 92F/4W)

North-central Vargas Island.

Claims: MN, 58 in all.

Owner: VARGAS MINES LTD., 807, 850 West Hastings Street, Vancouver 2.

Metals: Copper, zinc.

Work Done: Reconnaissance and detailed soil sampling on 20 claims, three X-ray diamond-drill holes totalling 500 feet on MN 1, and reconnaissance geological mapping over the northwest half of the island; R. H. D. Philp, in charge.

Reference: Assessment Report No. 1969.

KALAPPA (No. 675, Fig. 33)

Location: Lat. 49° 10′–14′ Long. 125° 47′–52′ (92F/4W)

North-central Meares Island.

Claims: One hundred and five located MW claims and the Crown-granted KALAPPA (Lot 1299), SHINNICK FRACTION (Lot 1300), JACK OF CLUBS (Lot 1301), and GOLDEN GATE (Lot 1302) claims.

Access: By shallow-draught boat from Tofino, 4 miles to the southwest.

Owner: FORT RELIANCE MINERALS LIMITED, 25 Adelaide Street East, Toronto 1, Ont.

Metals: Gold, silver, copper.

Work Done: Geological mapping, mainly on the southern claims, a geochemical stream sediment and soil survey, and trenching.

References: *Minister of Mines, B.C.*, Ann. Rept., 1928, p. 370; Assessment Report No. 2108.

FOREMOST, CLEAR CREEK, COPPER CREEK (No. 640, Fig. 33)

Location: Lat. 49° 14.5′ Long. 125° 35′ (92F/4E)

At the head of Tofino Inlet.

Claims: Thirty-five, including the FOREMOST, CLEAR CREEK, and COPPER CREEK claims. The property covers the old WHITE, CROW, and JUMBO showings.

ACCESS: By boat, 15 miles from Tofino.

OWNER: SUN-WEST MINERALS, LIMITED, 803, 1636 Haro Street, Vancouver 5.

METALS: Copper, nickel, molybdenum.

WORK DONE: Some trenches were made by blasting and sluicing.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 75.

DESCRIPTION: *See* Minister of Mines and Petroleum Resources Annual Report for 1963, pages 111 to 117.

BUTTLE LAKE

LYNX MINE (No. 688, Fig. 33)

By W. C. Robinson

LOCATION: Lat. 49° 34.5′ Long. 125° 35.5′ (92F/12E)
The mine is on Myra Creek, 1 mile west of the south end of Buttle Lake.

ACCESS: By 55 miles of road from Campbell River.

OWNER: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1; mine office, Myra Creek; J. B. Magee, general manager.

METALS: Copper, zinc, silver, gold (*see* Table 12 for production).

WORK DONE: Drifting and crosscutting, 4,645 feet; raising, 2,455 feet; diamond drilling, 36,643 feet. An Atlas Copco AR-3 compressor driven by a 125-horsepower 550-volt motor was installed. Two 750-kilowatt General Electric 4,160-volt generators driven by two 900-horsepower V-12 G.M. diesels were installed for standby power. New construction during 1969 included the erection of a recreation hall and senior staff quarters.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1964, pp. 157–166; 1968, p. 105.

PRICE (No. 688, Fig. 33)

LOCATION: Lat. 49° 33.5′ Long. 125° 34.2′ (92F/12E)
About half a mile west of the south end of Buttle Lake.

CLAIMS: Fifty-five claims, four of which are Crown-granted and the remainder held by record.

ACCESS: By road from Campbell River.

OPERATOR: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1.

METALS: Gold, silver, copper, lead, zinc.

WORK DONE: Geological, electromagnetic, induced polarization, and geochemical surveys were made of an area about a mile square southwest of the south end of Buttle Lake. A bulldozer trench 200 feet long and four diamond-drill holes totalling 347 feet were made.

PARAMOUNT (No. 688, Fig. 33)

LOCATION: Lat. 49° 34.3′ Long. 125° 35.3′ (92F/12E)
On the south side of Myra Creek, 1 mile west of the south end of Buttle Lake.

CLAIMS: Sixty-one claims, seven of which are Crown-granted and the remainder held by record.

ACCESS: By 55 miles of road from Campbell River.

OPERATOR: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1.

METALS: Copper, zinc, silver, gold, lead.

Work Done: Underground work consisted of 579 feet of drifting and 2,388 feet of diamond drilling in 10 holes, and geological mapping. On surface, 200 geochemical samples on nine claims along the south side of Myra Creek were analysed.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 105.

CREAM, BEAR (No. 714, Fig. 33)

Location: Lat. 49° 29.5′ Long. 125° 33′ (92F/5E, 12E)
Four miles south of Buttle Lake, at 3,000 to 5,000 feet elevation.

Claims: CREAM 1 to 18, CREAM 1E to 6E, BEAR 1 to 42, ELK 1 to 9, PRICE 1 to 4, F 1 to 16, X 1 to 25.

Access: By road, 60 miles from Campbell River.

Owner: CREAM SILVER MINES LTD., 9, 1045 West Pender Street, Vancouver 1.

Metals: Silver, gold, copper, lead, zinc.

Work Done: The BEAR 25, 27, 29, 31, and 33 to 42 claims were mapped geologically and a geochemical survey, comprising 300 samples, was made on BEAR 25 to 42 and F 1 to 16 claims. F. Holcapek and S. Lathrop, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 78; 1968, p. 106; Assessment Reports Nos. 826, 1563, 1564, and 1884.

Description: Galena, pyrite, sphalerite, tetrahedrite, pyrargyrite, owyheeite, and arsenopyrite occur in fissure veins in Permian volcanics.

KENNEDY RIVER

VENT (No. 617, Fig. 33)

Location: Lat. 49° 14.5′ Long. 125° 20.5′ (92F/3W)
East side of Kennedy River, 25 miles west of Alberni, at 1,000 to 2,200 feet elevation.

Claims: VENT 9 to 18, 28 to 33, 42 to 50, 52 to 63, a total of 37.

Access: Twenty-three miles by road from Alberni.

Owner: RAW MATERIALS VENTURES INC., 209, 475 Howe Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: The surface workings were mapped and geological and geochemical surveys were made. One hundred and thirty soil samples were taken for analysis. W. G. Stevenson was in charge.

Reference: Assessment Report No. 1902.

Description: Chalcopyrite, molybdenite, and pyrrhotite are disseminated in porphyritic intrusives.

PORT ALBERNI

HERB, MOON, RED, BLUE (No. 732, Fig. 33)

Location: Lat. 49° 16.5′–18′ Long. 125° 07.5′–12.5′ (92F/6E)
At the west end of Sproat Lake, mainly on the north side.

Claims: HERB 1 to 4, MOON 1 to 23, RED 1 to 40, BLUE 1 to 36.

Access: The property straddles the Alberni–Tofino highway, about 20 miles west of Port Alberni.

Owner: CHILCO DEVELOPMENTS LIMITED, 407, 475 Howe Street, Vancouver 1.

METAL: Copper.

WORK DONE: A magnetometer survey of 8½ line-miles and a geochemical survey (463 samples) were made on HERB 1 to 4 claims.

DESCRIPTION: Chalcopyrite occurs in greywacke and in volcanic rocks.

HM (No. 641, Fig. 33)

LOCATION: Lat. 49° 18.5′ Long. 125° 06′ (92F/6E) Between Great Central Lake and Sproat Lake, 15 miles west-northwest of Port Alberni.

CLAIMS: HM 1 to 26.

ACCESS: By road, 23 miles west from Port Alberni.

OWNER: GREAT CENTRAL MINES LTD., 3370 Coast Meridian, Port Coquitlam.

METALS: Antimony, mercury, copper.

WORK DONE: Five hundred square feet of bedrock was stripped and a total of 1,000 feet was drilled.

ANDY, PAK (No. 690, Fig. 33)

LOCATION: Lat. 49° 01′ Long. 124° 39′ (92F/2E) At the headwaters of Corrigan Creek, 17 miles south-southeast of Port Alberni, at 1,200 to 1,800 feet elevation.

CLAIMS: ANDY 1 to 28, PAK 1 to 22.

ACCESS: By gravel road, 25 miles from Port Alberni.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: An induced polarization survey of 1.2 line-miles on PAK 13, 15, and 16 and ANDY 9 and 24 claims. J. T. Walker, in charge.

REFERENCES: *Minister of Mines, B.C.,* Ann. Depts., 1967, p. 76; 1968, p. 104.

DESCRIPTION: Chalcopyrite, minor molybdenite, pyrrhotite, and pyrite occur as fracture-fillings and disseminations in granodiorite.

BARCLAY SOUND

SECHART (BALMORAL) (No. 713, Fig. 33)

LOCATION: Lat. 48° 57.5′ Long. 125° 14.5′ (92C/14E, 14W) Fifteen miles east of Ucluelet, on the southern tip of the peninsula, lying north of Sechart Channel.

CLAIMS: CHART 1 to 31 and the Crown-granted claim SECHART (Lot 3).

OPERATOR: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.

METAL: Mercury.

WORK DONE: Geological and geochemical surveys were made, six trenches totalling 1,700 feet in length were bulldozed, and four holes totalling 1,084 feet were diamond drilled. E. H. Ewer, in charge.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1927, p. 341; 1929, p. 373; *B.C. Dept. of Mines,* Bull. No. 5, p. 85.

DESCRIPTION: Cinnabar occurs along fault zones in ankeritized and silicified andesite.

NITINAT RIVER

ROB (NADIRA) (No. 672, Fig. 33)

LOCATION: Lat. 48° 55′ Long. 124° 35′ (92C/15E)
At the headwaters of Horse Creek, 6 miles west of the west end of Cowichan Lake.

CLAIMS: ROB 1 to 44, ROB 1 and 2 Fractions (formerly SOUTHERN CROSS, BORNITE, NADIRA, and OGM).

ACCESS: By four-wheel-drive vehicle via logging-roads, 40 miles from the village of Lake Cowichan.

OWNER: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: The geology of the claims was mapped regionally and in detail in the vicinity of the showings and a geochemical stream sediment, soil, and rock-chip survey was made. J. E. Christoffersen, supervisor.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1953, p. 170; 1956, p. 123; 1960, pp. 112–115; Assessment Reports Nos. 291 and 2115.

DESCRIPTION: Chalcopyrite, bornite, and pyrite are associated with a skarn zone which contains garnet, ilvaite, actinolite, and epidote.

NAT, NIT, LX (No. 606, Fig. 33)

LOCATION: Lat. 48° 56′ Long. 124° 42′ (92C/15E)
Two miles south of Francis Lake, from 500 to 3,000 feet elevation.

CLAIMS: NAT 1 to 40; NIT 1 to 35, 37 to 40; LX 1 to 20.

ACCESS: By logging-roads.

OPPERATOR: SPACEMASTER MINERALS LTD., 4725 Treetop Heights, Victoria.

WORK DONE: An airborne radioactivity, magnetic, and electromagnetic survey covering an area 27,500 by 13,000 feet, including all claims; H. Cohen, in charge.

REFERENCE: Assessment Report No. 2019.

VICTORIA MINING DIVISION

NITINAT RIVER

AVALLIN (No. 673, Fig. 33)

LOCATION: Lat. 48° 48′–54′ Long. 124° 25′–35′ (92C/15E, 16W)
The centre of the property is 6 miles southwest of the west end of Cowichan Lake.

CLAIMS: Approximately 535, comprising the TANA, TAN, AV, GATE, and OGM groups.

ACCESS: By road from Honeymoon Bay to either Nixon Creek or Nitinat River; thence by main log-haul roads south along these streams.

OPERATOR: QUINTANA MINERALS CORPORATION, 1215, 555 Burrard Street, Vancouver 1.

METALS: Iron, copper, molybdenum.

WORK DONE: The claims were mapped geologically and 3,000 soil samples were collected and analysed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1956, p. 124; 1957, p. 72; 1959, p. 138; Assessment Reports Nos. 642 and 2163.

CLO-OOSE

DC, RW, IT, ULL (No. 727, Fig. 33)

LOCATION: Lat. 48° 42′ Long. 124° 30′ (92C/9W, 10E)
Encompassing and immediately north of Cheewhat Lake, 4 miles northeast of Clo-oose.

CLAIMS: DC 1 to 14, RW 1 to 6, IT 7 and 8, ULL 1 and 2.

ACCESS: By logging-road and trail, 4 miles from Nitinat Lake.

OWNER: CHEEWHAT MINING LTD., 2448 Glenayr Drive, Nanaimo.

METALS: Copper, silver, zinc.

WORK DONE: Approximately 30 small pits and several trenches were excavated and a number of holes were percussion drilled.

COWICHAN LAKE

AB (No. 632, Fig. 33)

LOCATION: Lat. 48° 51.5′ Long. 124° 17.5′ (92C/16W)
On the south side of Cowichan Lake, 1 mile south-southeast of Island No. 6.

CLAIMS: AB 1 to 10.

ACCESS: By road, 12 miles from Lake Cowichan.

OWNER: MT. WASHINGTON COPPER CO. LTD., 610, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: A geological survey and a geochemical survey were carried out on the claims. Approximately 200 samples were collected for analysis. R. Dunsmore supervised the work.

DESCRIPTION: Chalcopyrite, pyrite, and chalcocite are associated with volcanic rocks, which are intruded by Jurassic stocks.

DORE, POLLY (No. 633, Fig. 33)

LOCATION: Lat. 48° 41′–44′ Long. 124° 15′–22′ (92C/9W)
Fifteen miles southwest of Lake Cowichan, on the north side of Hemmingsen Creek, at elevations of 1,000 to 2,400 feet.

CLAIMS: DORE and POLLY, 222 in all.

ACCESS: From Port Renfrew, 25 miles by road.

OWNER: Dore Metals Ltd.

OPERATOR: FOUR SQUARE EXPLORATION LTD., P.O. Box 163, Victoria.

METALS: Copper, molybdenum.

WORK DONE: The DORE and POLLY groups were geologically mapped and a 5 line-mile magnetometer survey was conducted over the DORE 162 to 164 claims. Some 540 soil samples were taken for analysis from several DORE claims and 40 silt samples were collected from streams draining both groups. R. J. Barclay was in charge.

DESCRIPTION: Chalcopyrite, molybdenite, and pyrite occur in Karmutsen volcanic rocks and in granitic intrusive rocks.

ALPHA, BETA, HILLCREST (No. 685, Fig. 33)

Location: Lat. 48° 44.5′ Long. 124° 04.5′ (92C/9E)
On the east fork of Robertson River, 5 miles south of Mesachie Lake.

Claims: Three Crown-granted claims, ALPHA, BETA, and TOBAGO (Lots 1G, 2G, and 3G), and 33 located claims, HILLCREST, HILLSIDE, ANOMALY, CW, RD, and others.

Access: By road, 10 miles from Cowichan Lake.

Operators: ALBETA MINES LTD., 1014 Sluggett Road, Brentwood Bay, and SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

Metals: Copper, iron.

Work Done: Approximately 315 samples were taken in the course of a reconnaissance geochemical survey. Three trenches totalling 1,725 feet in length and 10 pits were dug through overburden. Five trenches totalling 98 feet were cut in bedrock and two holes totalling 54 feet were diamond drilled. G. E. Apps, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1956, p. 122; 1962, pp. 125–127; 1968, p. 106.

Description: *See* the Minister of Mines and Petroleum Resources Annual Report for 1962, pages 125 to 127.

ANNE (No. 660, Fig. 33)

Location: Lat. 48° 55.7′ Long. 124° 11.3′ (92C/16E)
On the divide between Widow Creek and Chemainus River, 4 miles north of Youbou.

Claims: ANNE 1 to 12, 23 to 32, 35 to 40. The property includes the former COMEGO showing.

Access: By logging-road and trail, 4 miles from Youbou or 29 miles from Chemainus.

Owner: HIBERNIA MINING CO. LTD., 1101, 207 West Hastings Street, Vancouver 1.

Metals: Copper, molybdenum, gold.

Work Done: The surface workings were mapped and geological, geophysical, and geochemical surveys were made over all claims. J. Montgomery, in charge.

References: *Minister of Mines, B.C.*, Ann. Rept., 1948, p. 160; *Geol. Surv., Canada*, Mem. 13, p. 164; *B.C. Dept. of Mines*, Bull. No. 37, p. 57; Assessment Reports Nos. 1949 and 2167.

Description: The surveys were done in the area of a group of old showings of copper and gold in skarn, cut by quartz veins containing molybdenite.

CANDY (No. 634, Fig. 33)

Location: Lat. 48° 53.5′ Long. 124° 05.5′ (92C/16E)
Five miles north-northwest of Lake Cowichan, at approximately 2,000 feet elevation.

Claims: CANDY 1 to 22.

Access: By road, 20 miles from Lake Cowichan or Duncan.

Owner: FOUR SQUARE EXPLORATION LTD., P.O. Box 163, Victoria.

Metal: Copper.

Work Done: Thirty silt samples for analysis were collected from streams draining the claims and two trenches totalling 25 feet in length were dug by hand. R. J. Barclay was in charge.

Description: Chalcopyrite- and pyrrhotite-bearing quartz veins occur in fractured and sheared andesites and basalts of the Karmutsen Group.

DUNCAN

LENORA, TYEE, RICHARD III (No. 683, Fig. 33)

By W. C. Robinson

Location: Lat. 48° 52′ Long. 123° 47′ (92B/13W)
Between 1,300 and 1,900 feet elevation on Mount Sicker.

Claims: Twenty-six Crown-granted claims, including the LENORA (Lot 35G), TYEE (Lot 36G), RICHARD III (Lot 39G), and 28 recorded claims.

Access: By road from Duncan.

Owner: MOUNT SICKER MINES LTD., P.O. Box 576, Victoria; E. P. Sheppard and W. M. Sharp, consulting geologists.

Metal: Copper.

Work Done: An average crew of 10 men was employed during 1969. Some topographic and geological mapping was done, some geochemical soil sampling was done, two trenches totalling 80 feet in length were dug with a back-hoe, two pits were sunk, and four holes totalling 130 feet were diamond drilled. Other work included 1½ miles of road construction.

References: *Minister of Mines, B.C.*, Ann. Repts., 1902, pp. 238–252; 1943, p. 69; 1967, p. 79; 1968, p. 107; Assessment Reports Nos. 1104 and 1714.

SIRIUS (No. 682, Fig. 33)

Location: Lat. 48° 51′ Long. 123° 39.5′ (92B/13E)
Surrounding and to the south of Crofton Lake, 5 miles north-northeast of Duncan.

Claims: SIRIUS 1 to 26.

Access: By logging-road from Duncan.

Owner: CANPAC MINERALS LIMITED, 205 Ninth Avenue S.W., Calgary 21, Alta.

Metals: Copper, molybdenum.

Work Done: Approximately 500 soil samples were collected for analysis. D. C. Douglas, in charge.

Description: Copper and molybdenum sulphides occur in sheared volcanics and intrusives.

JORDAN RIVER

SUNLOCH AND GABBRO (No. 684, Fig. 33)

By W. C. Robinson

Location: Lat. 48° 26.5′ Long. 124° 02.2′ (92C/8E)
The mine is 1 mile north of the mouth of Jordan River.

Access: One mile by road from the turnoff on Highway No. 14, one-half mile east of River Jordan Post Office.

Operator: DISON DEVELOPMENT LTD., 1177 West Hastings Street, Vancouver 1; mine office, River Jordan; E. C. Dobell, president. The company has an operating lease from Sunro Mines Ltd. to mine on 51 contiguous claims which cover the Cave, Central, and River ore zones.

Metal: Copper.

Work Done: Maintenance of plant and other equipment and pumping in shaft. Five men were employed at the year-end under the supervision of F. Chwojka.

References: *Minister of Mines, B.C.*, Ann. Repts., 1950, pp. 180–193; 1962, pp. 127–129; 1968, p. 106.

SOOKE

KIRBY (No. 620, Fig. 33)

Location: Lat. 48° 23.5′–25.5′ Long. 123° 53′–56′ (92B/5W)
West side of Kirby Creek, 8 miles west of Sooke, at 500 to 1,000 feet elevation.

Claims: KIRBY, 32 in all.

Access: Ten miles by road from Sooke.

Owner: VANCO EXPLORATIONS LIMITED, 900, 1111 West Hastings Street, Vancouver 1.

Work Done: Geological, reconnaissance magnetic, and geochemical surveys were conducted over the claims. Approximately 300 soil and silt samples were taken for analysis. The work was supervised by T. E. Lisle.

OTTER (No. 619, Fig. 33)

Location: Lat. 48° 23′–24.5′ Long. 123° 44.5′–48′ (92B/5E, 5W)
Two miles northwest of Sooke, at approximately 300 feet elevation.

Claims: OTTER 13 to 38.

Access: From Sooke, 2 miles by road.

Owner: VANCO EXPLORATIONS LIMITED, 900, 1111 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: A geological survey, a reconnaissance magnetic survey, and a geochemical survey comprising 300 soil and silt samples were carried out on the claims. T. E. Lisle was in charge.

Description: Chalcopyrite occurs in Tertiary volcanics and gabbroic intrusions.

SOOKE COPPER (No. 686, Fig. 33)

Location: Lat. 48° 20.5′ Long. 123° 42.5′ (92B/5E)
48° 19′ 123° 39′
At Iron Mine Hill and Beechey Head on Sooke Peninsula.

Claims: W, JACK, PRO, K, A, GULL, and others, 110 in all. The JACK claims include the Iron Mine Hill and Merryth zone showings, and the W 16 to 21 claims include the Griffiths or Old Copper mine zones.

Access: By road from Victoria–Sooke highway.

Owner: Macsan Explorations Ltd.

Operator: GIANT EXPLORATIONS LIMITED, Seventh Floor, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: The surface workings on W 21 and JACK 1 and the underground workings on JACK 1 were mapped. Geological surveys were conducted on the two claims. Four holes totalling 904 feet were diamond drilled. I. S. Rote, in charge.

References: *Minister of Mines, B.C.*, Ann. Repts., 1948, pp. 162–170; 1951, pp. 199, 200; Assessment Report No. 61.

T, ZZ (No. 638, Fig. 33)

LOCATION: Lat. 48° 20.5′ Long. 123° 40′ (92B/5E)
Central part of Sooke Peninsula.
CLAIMS: T 1 to 8, ZZ 1 to 12.
ACCESS: By road, 15 miles from Sooke.
OWNER: CITEX MINES LTD., 520, 355 Burrard Street, Vancouver 1.
METAL: Copper.
WORK DONE: About 12 line-miles of electromagnetic and magnetometer surveys, supervised by S. V. Ramani.
REFERENCE: Assessment Report No. 2267.
DESCRIPTION: Chalcopyrite is disseminated in gabbro.

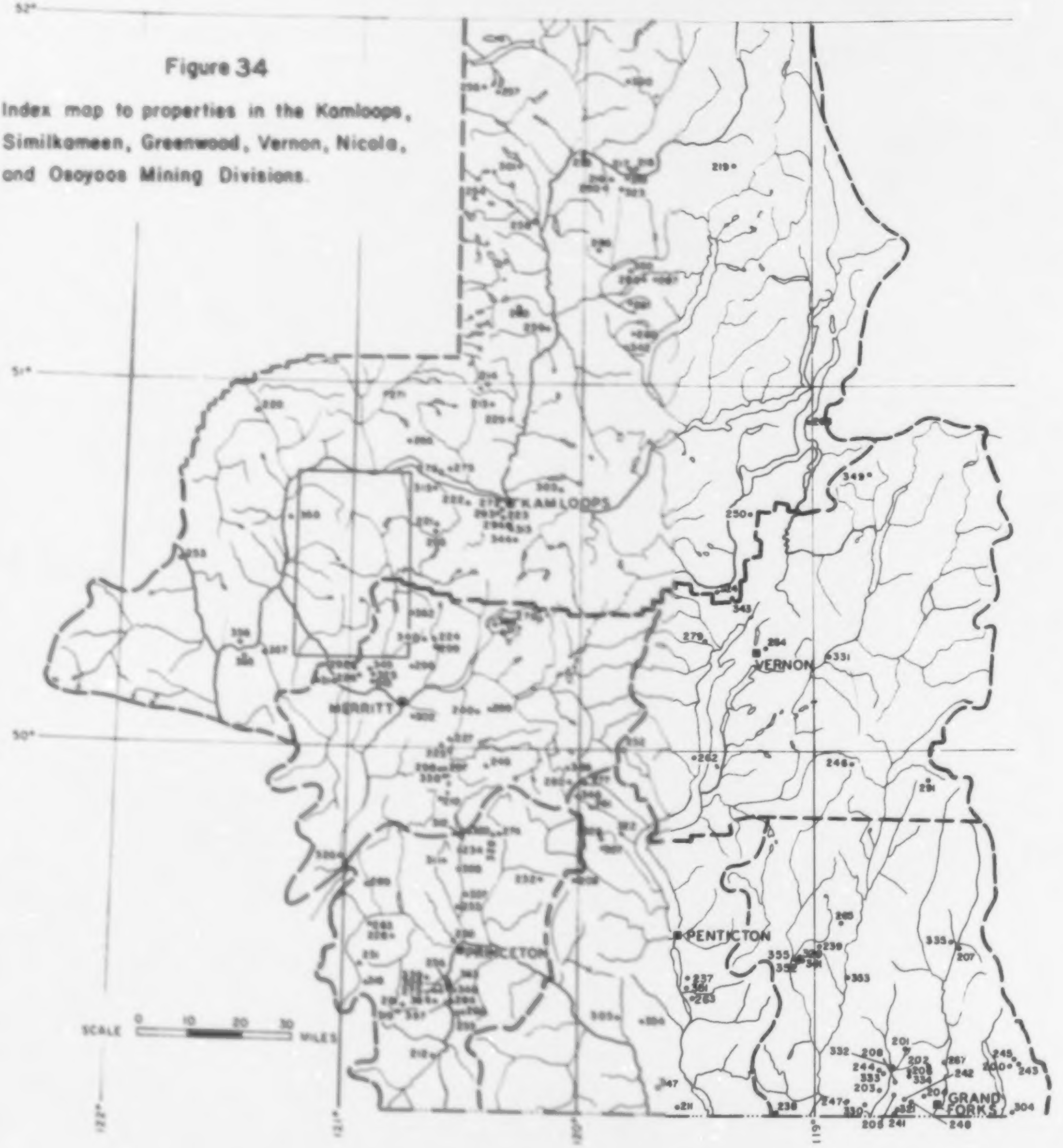

52°
51°
50°
122°
121°
120°
119°
KAMLOOPS
MERRITT
VERNON
PENTICTON
PRINCETON
GRAND FORKS
219
349
250
343
279
284
331
262
246
291
265
335
207
239
355
352
353
237
283
305
332
201
208
202
267
244
333
203
334
242
245
243
304
248
241
205
236
247
211
347
210
SCALE
0
10
20
30
MILES

Figure 34

Index map to properties in the Kamloops, Similkameen, Greenwood, Vernon, Nicola, and Osoyoos Mining Divisions.

KEY TO PROPERTIES ON INDEX MAP, FIGURE 34

200 HERB, page 311.
201 AMANDY, page 304.
202 LINDA, BG, page 304.
203 TAM O SHANTER, page 307.
204 BULLER, page 309.
205 CROESUS, JOHANNESBURG, page 308.
206 STAN, ROCKLAND, page 306.
ORO DENORO, page 306.
207 COPPER No. 2, page 310.
208 SKYLARK, LAST CHANCE, page 306.
209 REX, RONDA, page 294.
210 AMALG, page 277.
211 PEN, AXE, JOE, page 298.
212 RED STAR, page 290.
213 ROSE, page 234.
214 AJS, page 234.
215 BULLION, page 229.
216 TINKIRK, page 228.
217 BEARSDEN, page 228.
218 REXSPAR, page 229.
219 CARIBOO, page 228.
220 MAGGIE MINE, page 241
221 NED, page 238.
222 AFTON, page 237.
223 KIMBERLEY, page 236.
224 REB, page 271.
225 CM, page 274.
226 TOM, page 273.
227 MINT, page 274.
228 HG, IRON, DB, EV, page 282.
229 GOLD BUG, page 235.
230 TUL, page 282.
231 ASH, page 282.
232 EMPRESS, page 281.
233 DOT, page 280.
234 ROADBLOCK, page 279.
235 OX, page 289.
236 RAY, page 283.
237 BEV, LLOYD, DEN, page 294.
238 RAY, page 303.
239 ROB, page 302.
240 CW, NW, page 274.
241 LEXINGTON, page 308.
242 COLLEEN, page 308.
243 AJAX, BURNT BASIN, page 311.
244 BUTCHER BOY, page 307.
245 MT. VIEW, PEER, page 310.
246 BS, PANE, FERN, page 300.
247 G-TO, page 303.
248 BVPK, CV, page 309.
249 TOE, BOOT, MALACHITE, page 277.
250 LOBO, BONNIE BRAE, JOHN, page 240.
251 WHIP, SAW, PICK, page 289.
252 BEAR, page 300.
NIGHT OWL, page 299.
253 MUD, CHERRY, RICKHILL, SHARON, page 242.
254 PC, page 231.
255 SONJA, page 230.
256 CL, OX, page 230.
257 SL, page 231.
258 HIDDEN CREEK, page 232.
259 GH, page 232.
260 WASH, SHAW, page 232.
261 DONA, page 293.
262 SPIKE, page 299.
263 SOO, page 296.
264 DCK, page 298.
265 FUKI, page 302.
266 MERC, page 240.
267 SEATTLE, page 309.
268 BLUENOSE, KAL, CYE, page 239.
269 RANCHER, PEPSI, OUT, page 275.
270 DL, page 275.
271 LES, CHES, DE, page 240.
272 MAKAOO, page 235.
EVENING STAR, GOLDEN STAR, page 235.
273 T, page 287.
274 MABEL, page 280.
275 KL, page 238.
276 FS, SAGE, OK, page 239.
277 DAN, page 291.
279 HUGAL, HUD, page 299.
280 KIP, page 278.
281 JACK, page 233.
282 SOB, page 289.
ILSE, page 289.
283 CATHY, page 281.
284 MONEY, page 288.
285 MAX, HOPE, page 234.
286 BIRMOLY, page 232.
287 BEX, page 233.
288 RENNING, GRIZZLY, CU, page 233.
289 IRA, IR, page 281.
290 FH, page 230.
291 WATERLOO No. 3, page 300.
292 MARB, page 272.
293 RAINBOW, page 236.
294 IM, page 236.
295 TC, SPUR, JC, page 238.
296 FIR, page 271.
297 HALO, page 276.
298 BAT, TAB, page 276.
DOTE, page 276.
299 COKE, page 271.
300 SUMMIT, page 230.
301 MO, page 231.
302 BOY, CHATKO, page 273.
303 B & H, page 235.
304 MASTODON, page 311.
305 GOLCONDA, page 297.
306 CACHE, page 293.
307 GLAD, page 293.
308 AXE, BUD, BOL, page 279.
309 AXE, page 287.
310 PRIDE, SID, RAM, page 273.
311 PINE, REG, DY, page 278.
312 ESTHER, LEM, page 278.
313 ADMIRAL DEWEY, CYCLONE, ACE, page 236.
314 COPPER CANYON, EAGLE, SOS, page 273.
315 YR, page 238.
317 ACE, page 275.
318 GRANITE SCHEELITE, page 282.
319 SILVERTIP, page 290.
MJ, page 290.
320 OD, OB, OC, page 279.
321 No. 7, page 308.
322 SID, KC, page 293.
323 GOOF, SUE, page 229.
324 EIN, page 239.
325 ETTA, PEG, JUGS, page 272.
326 MAG, page 277.
328 TOP, FIX, page 280.
329 HIGHLAND BELL MINE, page 301.
330 MIDWAY, page 304.
331 CHAPUT, page 298.
332 COMBINATION, page 305.
333 MOTHER LODE, GREYHOUND, page 307.
334 PHOENIX MINE, page 305.
MARSHALL, page 305.
335 IXL, page 310.
336 KOM, page 278.
337 ELN, page 280.
338 HH, MIX, page 276.
339 WILMAC, page 283.
340 ALAMEADA, page 270.
341 ROCCO PLATA, VAN, page 302.
342 HOMESTAKE, page 234.
343 BJ, page 239.
344 C, PIN, ART, page 237.
J, page 237.
345 CRAIGMONT MINE, page 271.
346 BRENDA MINE, page 292.
347 HORN SILVER MINE, page 297.
348 COPPER MOUNTAIN MINE, page 283.
349 BRIGHT STAR, page 298.
350 EBL, page 233.
351 DUSTY MAC, page 294.
352 RAMBLER, page 301.
353 LOU, page 303.
354 BOOT, page 297.
355 WELLINGTON, page 301.
356 ROCKY, TOM, NAV, page 241.
357 ILK, ELK, FRI, PR, page 288.
362 OK, DONNY, AL, MAD ARAB, page 270.
363 INGERBELLE, page 283.
364 JILL, TOW, JJJ, page 287.
365 MOLLY B, page 242.
366 KING WILLIAM, ENTERPRISE, TUBAL CAIN, page 275.
367 T, FIL, page 241.
368 CM, page 241.

KAMLOOPS MINING DIVISION

GOSNELL

WOLF, MAGNET, CATHY (No. 278, Fig. 31)

LOCATION: Lat. 52° 36′ Long. 119° 47′ (83D/12W)
Between headwaters of Azure and North Thompson Rivers, 30 miles northwest of Gosnell.
CLAIMS: CATHY 1 to 7, MAGNET 1 to 6, WOLF 9 to 26.
ACCESS: By helicopter.
OWNER: TOURNIGAN MINING EXPLORATIONS LTD., 915, 1030 West Georgia Street, Vancouver 5.
WORK DONE: Thirty-nine line-miles of airborne magnetic survey.
REFERENCE: Assessment Report No. 2044.

VAVENBY

CARIBOO (No. 219, Fig. 34)

LOCATION: Lat. 51° 36.5′ Long. 119° 21.2′ (82M/11W)
At 5,600 feet elevation on south fork of Otter Creek, 15 miles east of Vavenby.
CLAIMS: CARIBOO 1 and 2.
ACCESS: By 15 miles of road from Vavenby.
OWNER: ROBERT JOSEPH FRANKS, P.O. Box 70, Vavenby.
METALS: Silver, manganese.
WORK DONE: Four trenches, total length 75 feet, dug by hand.

TINKIRK (No. 216, Fig. 34)

LOCATIONS: Lat. 51° 36′ Long. 119° 46′ (82M/12W)
East of Peavine Creek, about 1 mile north of Highway No. 5.
CLAIMS: TINKIRK 1 and 2.
ACCESS: By trail for 1 mile from Highway No. 5.
OWNERS: E. KIRK, 128 Fairview, Kamloops, and BILL TINDILL, Vavenby.
METALS: Silver, lead.
WORK DONE: An old adit 30 feet long was opened up and some open cuts on veins were blasted.
DESCRIPTION: Quartz vein contains narrow sulphide seams 1½ inches wide, mineralized with pyrite and galena.

BEARSDEN (No. 217, Fig. 34)

LOCATION: Lat. 51° 35.9′ Long. 119° 48.8′ (82M/12W)
On Mount McLennan road, about three-quarters of a mile north of Highway No. 5 and just east of Slate Creek.
CLAIMS: BEARSDEN 1 and 2.
ACCESS: Logging-road for 3 miles from Highway No. 5.
OWNER: ROBERT JOSEPH FRANKS, P.O. 70, Vavenby.
METALS: Silver, gold, copper, lead.
WORK DONE: Five hundred square feet of stripping, three pits, and 150 feet of trenching, all excavated by hand.
DESCRIPTION: Quartz vein in schist.

BULLION (No. 215, Fig. 34)

Location: Lat. 51° 34′ Long. 119° 51′ (82M/12W)
Between Butler and Lute Creeks, 1 to 1½ miles south of the North Thompson River and 3 miles east of Birch Island.

Claims: BULLION 1 to 12, PAT 2 to 4, BUT 1.

Access: By road.

Operator: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

Metal: Uranium.

Work Done: One diamond-drill hole 787 feet long was drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 164.

GOOF, SUE No. 323, Fig. 34)

Location: Lat. 51° 30.3′–32.7′ Long. 119° 49.5′–51.3′ (82M/12W)
At head of Harper Creek, 5¾ miles southeast of Birch Island.

Claims: GOOF 1 Fraction, 1 to 4, 6, 11, 12, 14 to 16, 33, 35, 37; SUE 1 to 35; HARP 1 Fraction.

Access: By a 9-mile access road which leaves the Birch Island–Vavenby road on the south side of the North Thompson River, 6.2 miles from the Birch Island ranger station.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Copper, zinc.

Work Done: Geological mapping, seven trenches totalling 1,600 feet dug in bedrock, and 13 holes totalling 5,723 feet diamond drilled on surface.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 165.

Description: Chalcopyrite, pyrite, sparse sphalerite, and galena in quartz lenses in schist, disseminated and as small veinlets and replacements in schist and phyllite.

BIRCH ISLAND

REXSPAR (No. 218, Fig. 34)

Location: Lat. 51° 33′ Long. 119° 55′ (82M/12W)
This property consists of a large number of claims south of the North Thompson River and centred at about 4,000 feet elevation on Foghorn Creek, 3 miles south of Birch Island.

Claims: Three hundred and thirty-seven located claims under the names TOP, PA, JAM, RAY, RADIO, ACTIVE, JANE, ELLA, CS, and 40 Crown-granted claims.

Access: Three miles of road south from Birch Island.

Owner: Consolidated Rexspar Minerals and Chemicals Limited.

Operator: DENISON MINES LIMITED, 4 King Street West, Toronto, Ont.; P. Pisani, geologist in charge.

Metals: Uranium, rare earths, fluorite, celestite.

Work Done: Topographic mapping; geological mapping; 130 miles of induced polarization surveying; 145 miles of scintillometer surveying; 18 miles of radon surveying; 4 miles of geochemical soil surveying; 1,200 feet of bulldozer trenching in three trenches; 5,000 feet of diamond drilling.

References: *Minister of Mines, B.C.*, Ann. Repts., 1954, pp. 108–110; 1963, p. 141; 1968, pp. 164, 165; Assessment Reports Nos. 1912A, 1912B, and 1913.

Description: Hydrothermal replacement and veining in trachyte.

FH (No. 290, Fig. 34)

LOCATION: Lat. 51° 31′ Long. 119° 58′ (82M/12W)
At 6,000 feet elevation, west of Foghorn Creek, about 5 miles due south of Birch Island.

CLAIMS: FH 1 to 29, 31 to 40, and FH Fraction.

ACCESS: By jeep-road from Birch Island.

OPERATOR: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METAL: Copper.

WORK DONE: Seven hundred samples collected along grid-lines for geochemical analysis; two trenches totalling 500 feet bulldozed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1923, p. 154 (*see* LYDIA); Assessment Reports Nos. 1624 and 1924.

DESCRIPTION: Pyrite and chalcopyrite in schist.

CLEARWATER

SONJA (No. 255, Fig. 34)

LOCATION: Lat. 51° 38′ Long. 120° 00′ (92P/9E)
On south bank of North Thompson River, one-half mile east of Clearwater.

CLAIMS: SONJA 2.

ACCESS: One mile by road from Clearwtaer.

OPERATOR: ROBERT JOSEPH FRANKS, P.O. Box 70, Vavenby.

METALS: Silver, lead, zinc, gold, copper.

WORK DONE: Eight trenches totalling 200 feet long, six pits totalling 25 feet deep, and 45 square feet of stripping were dug in overburden by hand.

SUMMIT (No. 300, Fig. 34)

LOCATION: Lat. 51° 50′ Long. 119° 50′ (82M/13W)
About 1½ miles east-northeast of Summit Lake on the north side of Trophy Mountain, 17 miles east-northeast of Clearwater.

CLAIMS: SUMMIT 1 to 26; ANNE; MARY; JUNE; GRACE 1, 2, and 4; ISOBELLA 1 and 2, all part of the SUMMIT-TASEKO group.

ACCESS: By helicopter from Clearwater.

OWNER: Taseko Mines Limited.

OPERATOR: SCURRY-RAINBOW OIL LIMITED, 532 Eighth Avenue S.W., Calgary, Alta.

METALS: Silver, copper, lead, zinc.

WORK DONE: Geological survey of claim area.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1956, p. 69 (*see* ASH, CAM, etc.); Assessment Reports Nos. 1140 and 2107.

DESCRIPTION: Coarse-grained pyrite, pyrrhotite, sphalerite with minor galena and chalcopyrite in elongate lenses in quartz-biotite gneiss.

CL, OX (No. 256, Fig. 34)

LOCATION: Lat. 51° 48.2′ Long. 120° 28.5′ (92P/16W)
Five miles southeast of the west end of Mahood Lake.

CLAIMS: CL 1, 3, 5 to 30; OX 1 to 3.

ACCESS: By 25 miles of logging-road from Clearwater.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Molybdenum.

WORK DONE: Four miles of induced polarization survey done on CL claims under direction of Dave Broswick and three diamond-drill holes totalling 306 feet drilled on CL 10 claim.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 165; Assessment Report No. 1664.

SL (No. 257, Fig. 34)

LOCATION: Lat. 51° 48′ Long. 120° 25′ (92P/16W)

Around west and south sides of Sicily Lake, 7 miles southeast of the west end of Mahood Lake.

CLAIMS: SL 7 to 43.

ACCESS: By logging-road from Clearwater, 26 miles.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Molybdenum.

WORK DONE: All claims mapped geologically by T. Y. Kim; induced polarization survey made of SL 9, 10, 15 to 34 claims totalling 7 miles; 100 soil and stream samples collected for analysis.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 132 (part of ground covered by MAD and NOD claims).

DESCRIPTION: Molybdenite in quartz stringers in granodiorite.

LITTLE FORT

MO (No. 301, Fig. 34)

LOCATION: Lat. 51° 35.5′ Long. 120° 18.2′ (92P/9W)

One and one-half miles south of the east end of Taweel Lake, 12 miles north-northwest of Little Fort.

CLAIMS: MO 4, 6, 8, 10 to 18, 20 to 34, 39 to 42; SEVEN UP; BLUE JAY; MOOSE; LUCKY STRIKE; GORDON No. 3; LOON; FLY; LUCKY; RUB.

ACCESS: By road, 20 miles from Little Fort.

OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 1112 West Pender Street, Vancouver 1.

METAL: Molybdenum.

WORK DONE: Geological, electromagnetic, magnetometer, and geochemical soil surveys were made of all the claims, and nine holes totalling 3,200 feet were diamond drilled under the supervision of S. Pilcher.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1965, p. 60; 1961, p. 49 (*see* Tintlhohtan Lake).

DESCRIPTION: Molybdenite with minor pyrite, quartz, wolframite, fluorite in fracture-fillings in leuco-quartz monzonite.

PC (No. 254, Fig. 34)

LOCATION: Lat. 51° 31′ Long. 120° 29.5′ (92P/9W)

At the head of Phinetta Creek, 3 miles northwest of Janice Lake.

CLAIMS: PC 2, 4, 6, 19 to 24, 37 to 46.

ACCESS: From Little Fort, 25 miles by Bridge Lake road.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Copper.

WORK DONE: Four and one-half line-miles of induced polarization survey.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 168; Assessment Reports Nos. 1193, 1750, and 2210.

HIDDEN CREEK (No. 258, Fig. 34)

LOCATION: Lat. 51° 27.8′ Long. 120° 16.4′ (92P/8W)
On Eakin Creek, 3 miles northwest of Little Fort.

CLAIMS: HIDDEN CREEK, CANYON.

ACCESS: By road, 7 miles from Little Fort.

OWNER: HOWARD HANSEN, Little Fort.

METALS: Gold, silver, copper.

WORK DONE: Sixty feet of trenching, one pit, and 1,000 square feet of stripping dug by hand in overburden; 12 feet of trenching done in rock; one 22-foot hole diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 168.

BARRIERE

WASH, SHAW (No. 260, Fig. 34)

LOCATION: Lat. 51° 12.5′ Long. 120° 17.2′ (92P/1W)
Near head of Fishtrap Creek, 7 miles northwest of Barriere.

CLAIMS: WASH 1 to 10; SHAW 11 to 20.

ACCESS: By road, 25 miles from Barriere.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Five hundred and thirty-seven soil samples were collected from the property for geochemical analysis.

GH (No. 259, Fig. 34)

LOCATION: Lat. 51° 08.7′ Long. 120° 11.3′ (92P/1E)
Just east of Fishtrap Creek, 3 miles southwest of Barriere.

CLAIMS: GH 1 to 60.

ACCESS: By road, 5 miles from Barriere.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Seven hundred and seventy-five soil samples collected from GH 23 to 42 and 45 to 58 claims for geochemical analysis by J. R. Forsythe.

BIRMOLY (No. 286, Fig. 34)

LOCATION: Lat. 51° 23′ Long. 119° 55′ (82M/5W)
On Birk Creek, 3 miles northwest of the west end of North Barriere Lake.

CLAIMS: BIRMOLY 1 to 4.

ACCESS: By helicopter.

OPERATOR: SECONDO MINING LTD., 700, 1177 West Hastings Street, Vancouver 1.

METAL: Molybdenum.

WORK DONE: Surface workings mapped, induced polarization and geochemical surveys run, six holes totalling 403.5 feet diamond drilled.

DESCRIPTION: Molybdenite disseminated in acid intrusive.

EBL (No. 350, Fig. 34)

LOCATION: Lat. 51° 18.3′–23′ Long. 119° 45′–49′ (82M/5W)
Between North and East Barriere Lakes.

CLAIMS: EBL, REM, BRAD, totalling 108 claims in all.

ACCESS: By road, 25 miles from Barriere.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METAL: Copper.

WORK DONE: Twelve line-miles of ground magnetometer survey run on REM and EBL claims, 1,500 soil samples collected on same claims for chemical analysis, one-half mile of road built, and five holes totalling 2,200 feet diamond drilled.

RENNING, GRIZZLY, CU (No. 288, Fig. 34)

LOCATION: Lat. 51° 17′ Long. 119° 45′ (82M/5E)
On the southeast side, near the north end of East Barriere Lake.

CLAIMS: GRIZZLY 1 to 6, RENNING 1 to 6, KEN 1 to 12, CU 1 to 7, FERN 1 to 28.

ACCESS: By road from Barriere, 22 miles.

OPERATOR: SOUVENIR MINES LTD., 205, 614 Sixth Avenue S.W., Calgary 1, Alta.

METALS: Copper, silver.

WORK DONE: Ground magnetometer survey on GRIZZLY 1 to 3, 5, and 6, KEN 1 to 4, and CU 1 and 2 claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 168; Assessment Report No. 2230.

DESCRIPTION: Chalcopyrite and pyrite disseminated in metasedimentary rocks.

BEX (No. 287, Fig. 34)

LOCATION: Lat. 51° 17′ Long. 119° 43′ (82M/5E)
On John Creek, 1½ miles east of East Barriere Lake.

CLAIMS: BEX, 63 in all.

ACCESS: By road, 22 miles from Barriere.

OWNER: BARRIERE EXPLORATIONS LTD., Barriere.

METALS: Copper, nickel.

WORK DONE: A bulldozer was used to dig eight trenches totalling 1,805 feet in length and to strip 4,300 square feet; seven holes totalling 1,889 feet were diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 169.

JACK (No. 281, Fig. 34)

LOCATION: Lat. 51° 13′ Long. 119° 48′ (82M/4W)
South of Bromley Creek and 1½ miles northwest of South Barriere Lake.

CLAIMS: JACK 1 to 4.

ACCESS: By road, 15 miles east from Barriere.

OPERATOR: WESTBRUN EXPLORATION LTD., 614 Sixth Avenue S.W., Calgary, Alta.

WORK DONE: Reconnaissance geological survey.

REFERENCE: Assessment Report No. 2030.

ADAMS LAKE

HOMESTAKE (No. 342, Fig. 34)

LOCATION: Lat. 51° 06.7′ Long. 119° 49.2′ (82M/4W)

CLAIMS: Five Crown grants, plus 24 additional claims.

ACCESS: Three miles west of Squaam Bay, Adams Lake, on Louis Creek to Squaam Bay road.

OWNER: KAMAD SILVER CO. LTD., 141 Victoria Street, Kamloops.

METALS: Silver, barite.

WORK DONE: Bulldozing diamond-drill hole road, diamond drilling, geochemical sampling, trenching. Airborne magnetic and electromagnetic surveys.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1964, p. 99.

MAX, HOPE (Twin Mountain) (No. 285, Fig. 34)

LOCATION: Lat. 51° 08′ Long. 119° 46′ (82M/4W)
On Homestake Creek, 4 miles north of the west end of Agate Bay.

CLAIMS: MAX, HOPE, 72 claims in all.

ACCESS: From Louis Creek by road, 28 miles.

OWNER: SINMAX MINES LTD., 510, 850 West Hastings Street, Vancouver 1.

METALS: Silver, lead, zinc, copper, barite.

WORK DONE: Surface workings and geology mapped and 6,000 feet of trenching in 15 trenches bulldozed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1936, p. D 39; 1953, p. 101; Assessment Reports Nos. 1783 and 2093.

DESCRIPTION: Quartz carbonate veins in schist.

KAMLOOPS

AJS (No. 214, Fig. 34)

LOCATION: Lat. 51° 00′ Long. 120° 26′ (92I/16W, 92P/1W)
Two miles northeast of Wentworth Lake.

CLAIMS: AJS 1 to 56.

ACCESS: From Kamloops, 23 miles by helicopter.

OWNER: GUNNEX LIMITED, 1019, 409 Granville Street, Vancouver 2.

METALS: Molybdenum, copper.

WORK DONE: Surface workings were mapped, the geology of the claims was mapped by S. S. Tan, and 760 soil and stream silt samples were collected for geochemical analysis.

DESCRIPTION: Molybdenite, pyrite, and chalcopyrite occur in a porphyry-type copper deposit in a hornblende-tonalite intrusive in volcanic arenite.

ROSE (No. 213, Fig. 34)

LOCATION: Lat. 50° 56.5′ Long. 120° 24′ (92I/16W)
At 4,500 feet elevation near head of Rushton Creek.

CLAIMS: ROSE 1 to 11.

ACCESS: About 20 miles by logging-road north from Kamloops.

OWNER: GUNNEX LIMITED, 1019, 409 Granville Street, Vancouver 2.

METAL: Molybdenum.

WORK DONE: S. S. Tan made a geological map of the property and company men collected 90 soil and stream silt samples for geochemical analysis.

DESCRIPTION: Molybdenum mineralization in black Cache Creek Group shale.

GOLD BUG (No. 229, Fig. 34)

Location: 50° 50.2′ Long. 120° 20′ (92I/16W)

Claims: GOLD BUG, LUCKY STRIKE.

Access: Seven miles west by logging-road from Westsyde road, 12 miles north of Kamloops.

Owner: MIKE SALK, 1344 Eighth Street, Kamloops.

Metals: Gold, silver, lead, zinc, molybdenum, copper.

Work Done: Adit advanced 5 feet, shaft sunk 6 feet.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 172.

B & H (No. 303, Fig. 34)

Location: Lat. 50° 41.8′ Long. 120° 05.8′ (92I/9E)
On Harper Ranch, north side of South Thompson River, 3½ miles northwest of Campbell Creek Junction.

Claims: B & H 1 to 12.

Access: Twelve miles of road from Kamloops.

Owner: B. J. HUNTER, 135 Yew Street, North Kamloops.

Metals: Gold, silver, copper.

Work Done: Ten test-pits dug by hand, 2,000 square yards stripped by bulldozer, three cuts totalling 40 feet excavated in bedrock.

Reference: *Geol. Surv., Canada,* Mem. 249, pp. 69–72 (*see* Riverside).

Description: Veins and stringers of quartz in shears in Cache Creek sedimentary rocks.

MAKAOO (No. 272, Fig. 34)

Location: Lat. 50° 38.7′ Long. 120° 23.7′ (92I/10E)
On Ironmask Hill, 6 miles west of Kamloops.

Claims: About 183 claims, including the PYTHON, DOT, CUB, JET LINE, and others.

Access: By road, 3 miles south of Highway No. 1.

Owner: ROLLING HILLS COPPER MINES LIMITED, P.O. Box 4183, Vancouver 9.

Metal: Copper.

Work Done: Two holes totalling 800 feet were diamond drilled and 13 holes totalling 2,910 feet were percussion drilled.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 172.

EVENING STAR, GOLDEN STAR (No. 272, Fig. 34)

Location: Lat. 50° 36.6′–39.6′ Long. 120° 23.8′–27.6′ (92I/9W)
On Ironmask Hill, 5 miles southwest of Kamloops.

Claims: EVENING STAR and others, totalling 56 claims in all.

Access: Lac Le Jeune road.

Operator: KIMBERLEY COPPER MINES LTD., 1770 One Bentall Centre, Vancouver 1.

Metals: Copper, molybdenum, silver.

Work Done: Shaft rehabilitated for 80 feet, two drifts driven 400 feet, 16 holes totalling 5,000 feet diamond drilled from surface.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 142.

RAINBOW (No. 293, Fig. 34)

Location: Lat. 50° 38.5′ Long. 120° 27.7′ (92I/9W)
On Sugarloaf Hill at 3,300 feet elevation, about 7 miles southwest by west of Kamloops.

Claims: RAINBOW claims, 32 in total, and LONE TREE (Lot 883).

Access: By road from Kamloops.

Owner: BELCARRA EXPLORATIONS LTD., 156 Victoria Street, Kamloops.

Metal: Copper.

Work Done: For a geochemical survey, 325 samples were collected; three trenches totalling 600 feet in length bulldozed; five holes totalling 350 feet diamond drilled on surface.

Reference: *Geol. Surv., Canada*, Mem. 249, 1948, p. 115 (*see* Sugarloaf Hill).

Description: Chalcopyrite, pyrite, and magnetite in shear zones in quartz diorite.

KIMBERLEY (No. 223, Fig. 34)

Location: Lat. 50° 38′ Long. 120° 21′ (92I/9W)
Three miles south of Kamloops and 1½ miles northwest of Knutsford.

Claims: Forty-one plus seven Crown grants, including KIMBERLEY (Lot 1447), CHARLOTTE (Lot 1448), LAST CHANCE (Lot 1449), and others.

Access: Ten miles by road from Kamloops via Highway No. 5 and Lac Le Jeune road.

Operator: PHILLIPS PETROLEUM COMPANY, Minerals Division, P.O. Box 237, Salt Lake City, Utah 84110.

Metal: Copper.

Work Done: Three holes totalling 750 feet were diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 169.

Description: Chalcopyrite and malachite in fractures in volcanic and intrusive rocks.

IM (No. 294, Fig. 34)

Location: Lat. 50° 35.3′–36.9′ Long. 120° 18.9′–21.3′ (92I/9W)
Adjacent to Knutsford to south and west.

Claims: DISPATCHER (Lot 1748), HAWTHORNE (Lot 834), and 74 IM claims.

Access: By road, 5 miles from Kamloops.

Owner: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

Metal: Copper.

Work Done: Two and one-half miles of magnetometer survey done on IM 12, 13, and 61 claims, 14 miles of induced polarization survey done, and 120 samples for geochemical analysis collected on the whole group.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 172; Assessment Report No. 1748.

Description: Chalcopyrite and pyrite in micromonzonite.

ADMIRAL DEWEY, CYCLONE, ACE (No. 313, Fig. 34)

Location: Lat. 50° 35′ Long. 120° 19.3′ (92I/9W)
One and three-quarters miles due south of Knutsford Post Office.

Claims: ADMIRAL DEWEY (Lot 1561), BLACK BEAUTY (Lot 1560), CYCLONE (Lot 1562), ACE, BYR.

Access: By road from Knutsford.

Operator: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

Metal: Copper.

Work Done: Geological survey, ground magnetometer survey, induced polarization survey, and 1,392-sample geochemical survey.

References: *Geol. Surv., Canada*, Mem. 249, 1948, p. 114 (*see* Dewey Group); Assessment Reports Nos. 2143 and 2144.

Description: Copper mineralization in diorite.

J (No. 344, Fig. 34)

Location: Lat. 50° 34.5′ Long. 120° 17.7′ (92I/9W)
On Highway No. 5, about 4 miles southeast of Knutsford.

Claims: J 1 to 38, C 19 to 26.

Access: Highway No. 5.

Owner: KAL RESOURCES LTD., 1770 One Bentall Centre, Vancouver 1.

Metal: Copper.

Work Done: The geology was mapped, 25 miles of induced polarization survey was run, 875 soil samples were collected for a geochemical survey, five trenches totalling 1,000 feet in length were bulldozed, and seven holes totalling 3,100 feet were diamond drilled.

C, PIN, ART (No. 344, Fig. 34)

Location: Lat. 50° 34.5′ Long. 120° 17.7′ (92I/9W)
On Highway No. 5, about 4 miles southeast of Knutsford.

Claims: C, PIN, ART.

Access: Highway No. 5.

Operator: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, Suite 4105, One Place Ville Marie, Montreal, P.Q.

Metals: Copper, silver.

Work Done: The geology was mapped, 30 miles of induced polarization survey was run, 900 soil samples were collected for a geochemical survey, one 800-foot-long trench was bulldozed, and eight holes totalling 3,200 feet were diamond drilled.

Reference: Assessment Report No. 1746.

AFTON (No. 222, Fig. 34)

Location: Lat. 50° 40′ Long. 120° 30′ (92I/10E)
At 2,400 feet elevation, adjacent to the Trans-Canada Highway, 8 miles west of Kamloops.

Claims: AFTON 1 to 8; ADD 1 to 30; POT 1 to 9, 18, 19; and DOMINION (Lot 1595) (Mineral Lease 22).

Access: By Trans-Canada Highway.

Operator: C. F. MILLAR LTD., P.O. Box 4183, Vancouver 9.

Metal: Copper.

Work Done: Geochemical survey of AFTON 5 and 6 claims; 17 holes totalling 3,316 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 147; Assessment Reports Nos. 879 and 1677.

YR (No. 315, Fig. 34)

Location: Lat. 50° 40′–44′ Long. 120° 36′–42′ (92I/10E)
Adjacent to Trans-Canada Highway, south of Cherry Creek.

Claims: YR 1 to 48, 51 to 60, grouped as CHERRY CREEK 1 and 2 groups.

Access: Side roads from Trans-Canada Highway in vicinity of Cherry Creek.

Owner: TUPCO MINES LTD., 1710, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Geological survey and geochemical survey involving 1,397 soil samples.

Reference: Assessment Report No. 2138.

NED (No. 221, Fig. 34)

Location: Lat. 50° 36.4′ Long. 120° 38.9′ (92I/10E)
At elevation 5,000 feet on northeast slope of Greenstone Mountain.

Claims: NED 1 to 20.

Access: By 15 miles of logging-road south from the Trans-Canada Highway at a point 10 miles west of Kamloops.

Owner: E. O. CHISHOLM, 821, 602 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Soil samples were taken at 100-foot intervals over all the claims for geochemical analysis for copper.

Description: Chalcopyrite dissemination in Nicola volcanic rocks.

TC, SPUR, JC (No. 295, Fig. 34)

Location: Lat. 50° 35′ Long. 120° 39′ (92I/10E)
Between Dominic and Cornwall Lakes, 9 miles south of Cherry Creek.

Claims: TC, SPUR, JC, BRUCE, 89 claims and fractions.

Access: By Cherry Creek to Dominic Lake road.

Owners: Dominic Lake Mining Company Ltd. and Tro-Buttle Exploration Limited.

Operator: TRO-BUTTLE EXPLORATION LIMITED, 913, 1030 West Georgia Street, Vancouver 5.

Metal: Molybdenum.

Work Done: A topographic map was prepared and the surface workings mapped, the geology was plotted, and a magnetometer survey was run over 19 miles of line.

Reference: Assessment Report No. 2102.

Description: Molybdenite occurs as disseminations and in narrow quartz stringers in a granitic stock and surrounding volcanics.

KL (No. 275, Fig. 34)

Location: Lat. 50° 45′ Long. 120° 36′ (92I/15E, 10E)
On north side of Kamloops Lake, just west of Battle Bluff.

Claims: KL 1 to 44.

Access: By road from Tranquille.

Owner: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

Work Done: Geological, geochemical, ground magnetometer, electromagnetic, and induced polarization surveys.

References: Assessment Reports Nos. 2001A and 2001B.

FS, SAGE, OK (No. 276, Fig. 34)

LOCATION: Lat. 50° 45′ Long. 120° 38′ (92I/15E, 10E)
Immediately northeast of Frederick Siding on the north shore of Kamloops Lake, 14 miles west of Kamloops.
CLAIMS: SAGE 1 to 3; OK 1 to 5, 9 to 12; HILLTOP 1 to 4, 7, and 8; KAMLOOPS 1 and 2; LAKE 1 to 3.
ACCESS: By road from Kamloops.
OPERATOR: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
METAL: Copper.
WORK DONE: Magnetometer and induced polarization surveys, electromagnetic and geological surveys, soil survey, one 500-foot hole diamond drilled.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 60 (*see* HILLTOP); *Geol. Surv., Canada*, Mem. 249, 1948, p. 127 (*see* NORTH STAR); Assessment Reports Nos. 1751 and 1951.

FALKLAND

BJ (No. 343, Fig. 34)

LOCATION: Lat. 50° 25′ Long. 119° 22′ (82L/6W)
On hillside 2 miles west of Round Lake, 12 miles north-northwest of Vernon.
CLAIMS: BJ 1 to 14.
ACCESS: By road, 12 miles from Vernon.
OPERATOR: COIN CANYON MINES LTD., 850 West Hastings Street, Vancouver 1.
METALS: Gold, zinc.
WORK DONE: Geological mapping of BJ 4 claim, geochemical survey of BJ 1 to 14 claims, five trenches totalling 60 feet blasted.
REFERENCES: *Geol. Surv., Canada*, Mem. 296, p. 141 (*see* Black Hawk).

EIN (No. 324, Fig. 34)

LOCATION: Lat. 50° 26.3′ Long. 119° 25.5′ (82L/6W)
Between 2,000 and 4,000 feet elevation, on the hillside 2½ miles southeast of Sweetsbridge Station and 5 miles southeast of Falkland.
CLAIMS: EIN 1 to 22.
ACCESS: By road from Falkland.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METAL: Copper.
WORK DONE: Four trenches totalling 2,500 feet dug in bedrock.
REFERENCE: Assessment Report No. 1572.

SHUSWAP LAKE

BLUENOSE, KAL, CYE (No. 268, Fig. 34)

LOCATION: Lat. 50° 54′ Long. 119° 02′ (82L/14E)
On east shore of Shuswap Lake, 5 miles north of Sicamous and immediately south of Quartzite Point.
CLAIMS: BLUENOSE, KAL, CYE.
ACCESS: By boat from Sicamous.

Operator: TRANQUILLITY EXPLORATIONS LTD., Sicamous.

Work Done: Nine miles of ground magnetometer survey was done on the KAL 2 and 3 and BLUENOSE 2, 3, 9 to 12, 20, 22, and 24 claims.

Reference: Assessment Report No. 2021.

LOBO, BONNIE BRAE, JOHN (No. 250, Fig. 34)

Location: Lat. 50° 40′ Long. 119° 17′ (82L/11W)
At 3,500 feet elevation, on the north slope of Mount Ida, 2½ miles south of Salmon Arm.

Claims: LOBO, BONNIE BRAE, JOHN, totalling 40 claims.

Access: By road, 4 miles from Salmon Arm.

Owner: ANNMAR MINING LTD., 812, 1177 West Hastings Street, Vancouver 1.

Metals: Silver, copper, gold.

Work Done: Two holes totalling 2,000 feet were diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 135.

Description: Pyrite and chalcopyrite in fracture zone in Shuswap terrane.

SAVONA

MERC (No. 266, Fig. 34)

Location: Lat. 50° 49′–52′ Long. 120° 44′–48′ (92I/15W)
Between 2,100 and 4,600 feet elevation on hill east of Carabine Creek, 3½ miles north of Copper Creek Post Office.

Claims: MERC 1 to 17, 29 to 65; LEE 1 to 3; WEDGE 1. Showings formerly were known as HARDIE MOUNTAIN.

Access: By road from Savona, 21 miles.

Operator: SAVANNA CREEK GAS & OIL LIMITED, 904, 237 Seventh Avenue S.W., Calgary 2, Alta.

Metal: Mercury.

Work Done: L. G. Morrison mapped the geology of the MERC 1 to 17, 29 to 42, 46, 48, 50, 52, 54, and 60 claims; collected 2,000 soil samples for mercury analysis over the same area; and mapped surface workings.

References: *B.C. Dept. of Mines*, Bull. 5, p. 45; Assessment Reports Nos. 1789, 1914, and 1989.

Description: Cinnabar occurs with silicification and pyrite in felsite.

LES, CHES, DE (No. 271, Fig. 34)

Location: Lat. 50° 58′ Long. 120° 52′ (92I/15W)
On Criss Creek, 3 miles northwest of Red Lake Post Office.

Claims: LES 2; CHES 3, 5, 6; DE 1, 9, 12, 14; ROY 12, 14, 15; RAY 18.

Access: By logging-road, 26 miles from Savona.

Owner: CRISS CREEK MINES LTD., 600, 330 Ninth Avenue S.W., Calgary, Alta.

Metals: Copper, molybdenum, silver, lead, zinc.

Work Done: Geochemical soil sampling and geological surveys of the claims, 1,500 feet of trenching, 100 acres of bulldozer stripping.

References: Assessment Reports Nos. 1602 and 2033.

BONAPARTE RIVER

MAGGIE MINE (No. 220, Fig. 34)

LOCATION: Lat. 50° 55.4′ Long. 121° 25.7 (92I/14W)
Just west of Highway No. 97, about 10 miles north of Cache Creek or 2 miles south of Scottie Creek.

CLAIMS: Sixty-eight, including Mineral Lease 33 comprising the EIGGAM group (Lots 410 to 421) and the BETH and M located claims.

ACCESS: Highway No. 97.

OWNER: BETHLEHEM COPPER CORPORATION LTD., P.O. Box 520, Ashcroft.

METALS: Copper, molybdenum.

WORK DONE: The property was mapped geologically, 30 grab-samples were collected, and one 1,487-foot-long hole was diamond drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 173; Assessment Report No. 2020.

DESCRIPTION: Pyrite-chalcopyrite-molybdenite mineralization in altered mixed rocks.

CM (No. 368, Fig. 34)

LOCATION: Lat. 50° 37.5′ Long. 121° 16.9′ (92I/11W)
On the slope east of the Canadian National Railway station at Basque, about 8 miles south of Ashcroft.

CLAIMS: CM 1 to 28.

ACCESS: By road, 10 miles south from Ashcroft.

OWNER: GRANDORA EXPLORATIONS LTD., 511, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geology of claims mapped on scale of 1 inch to 400 feet.

LYTTON

T, FIL (No. 367, Fig. 34)

LOCATION: Lat. 50° 15.3′ Long. 121° 22.2′ (92I/6W)
Astride Nicoamen River adjoining Indian Reserve No. 2, about 1¾ miles east of the Canadian Pacific Railway station of Thompson, 9 miles southwest of Spences Bridge.

CLAIMS: T, FIL, totalling 36 claims.

ACCESS: By logging-roads off the Trans-Canada Highway at the mouth of Nicoamen River.

OPERATOR: DRYAD MINES LTD., 629 Tegler Building, Edmonton 15, Alta.

METAL: Copper.

WORK DONE: Geology of claims mapped, 1,275 soil and 100 rock samples collected for a geochemical survey, and four trenches bulldozed.

ROCKY, TOM, NAV (No. 356, Fig. 34)

LOCATION: Lat. 50° 15.6′–18.1′ Long. 121° 26.4′–30′ (92I/6W)
On south slopes of the Scarped Range, adjacent to Pitquah to the north.

CLAIMS: Fifty-two claims, under names ROCKY, TOM, NAV, MACO.

ACCESS: From Canadian National Railway tracks at Pitquah.

Owner: LYTTON MINERALS LIMITED, 519, 602 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Six trenches dug in bedrock and geology mapped around trenches.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1964, p. 84.

MOLLY B (No. 365, Fig. 34)

Location: Lat. 50° 13.5′ Long. 121° 28.1′ (92I/3W)
At the head of Gladwin Creek, 2 miles southeast of Gladwin station.

Claims: MOLLY B 1 to 26.

Access: By road, 6 miles from Gladwin.

Operator: BURLINGTON MINES LTD., 818, 510 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Twenty line-miles of ground magnetometer and geochemical soil surveys run and four holes totalling 920 feet diamond drilled.

NESIKEP CREEK

MUD, CHERRY, RICKHILL, SHARON (No. 253, Fig. 34)

Location: Lat. 50° 30.9′ Long. 121° 46.8′ (92I/12W)
Between 2,500 and 4,500 feet elevation, about 1¼ miles up Nesikep Creek, west of the Fraser River, 15 miles southeast of Lillooet.

Claims: MUD, CHERRY, SHARON, NANCY, RICKHILL, RUSTY, totalling 56.

Access: By road from Lillooet.

Operator: DALEX MINES LTD., 8, 515 Granville Street, Vancouver 2.

Metals: Copper, silver, molybdenum.

Work Done: Two trenches totalling 205 feet in length bulldozed and 1 mile of road built on SHARON 1 and 2 claims.

References: *Minister of Mines, B.C.*, Ann. Repts., 1960, p. 24; 1968, p. 175; Assessment Report No. 1918.

HIGHLAND VALLEY

By W. J. McMillan, except as noted

ACB, PRICE, CN (No. 873, Fig. 35)

Location: Lat. 50° 26′ Long. 120° 53′ (92I/7W)
Around Tupper Lake.

Claims: ACB, PRICE, CN, totalling 102 claims in all.

Access: By road, 35 miles from Ashcroft.

Owner: ORO MINES LTD., 511, 850 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Induced polarization survey over 12 line miles on PRICE claims.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 163 (*see* North Oro).

ALAMO, SAN JOSE (No. 804, Fig. 35)

Location: Lat. 50° 20′–23′ Long. 120° 59′–121° 02′ (92I/6E, 7W)
Northeast of the junction of Skuhun and Skuhost Creeks.

Claims: ALAMO 1 to 15, SAN JOSE 1 to 33.

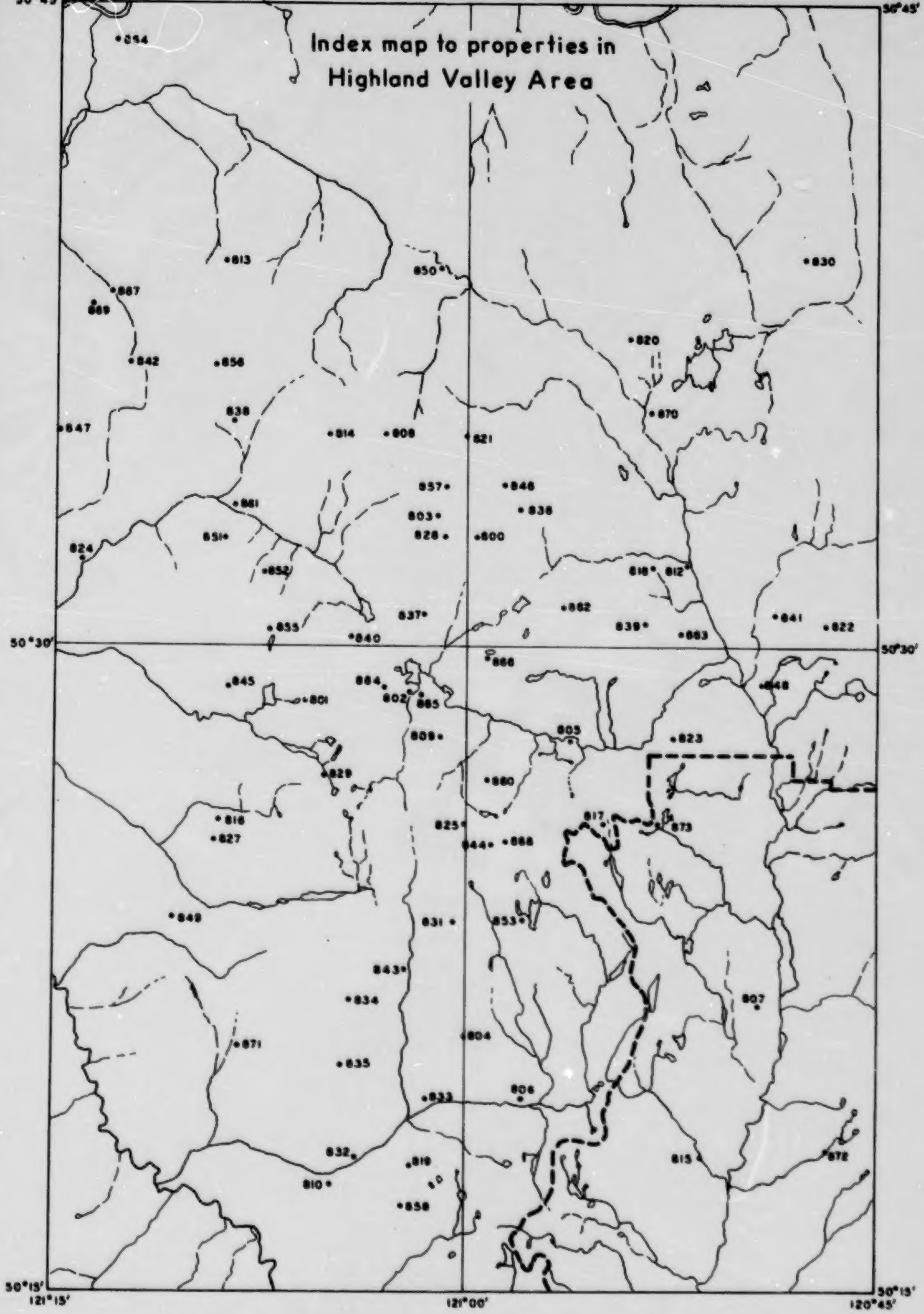

Index map to properties in
Highland Valley Area
50°45'
50°45'
854
813
887
889
842
856
838
847
814
808
821
850
830
820
870
857
846
803
836
828
800
861
851
824
852
818
812
862
837
841
822
855
840
839
883
50°30'
50°30'
866
845
801
884
802
865
848
809
805
823
829
860
816
827
825
817
873
844
868
849
831
853
843
834
807
871
804
835
806
833
832
819
815
872
810
858
50°15'
50°15'
121°15'
121°00'
120°45'
0
5
10
SCALE
MILES

Figure 35

KEY TO PROPERTIES ON INDEX MAP, FIGURE 35

800 TROJAN, page 266.
801 OK (ALWIN), page 262.
802 LAKE, page 259.
803 JACK, page 255.
804 ALAMO, SAN JOSE, page 242.
805 JOE, BET, page 256.
806 SPA, SKAT, JEFF, SKU, page 264.
807 LEE, page 270.
808 VW, AX, LATE, page 267.
809 LORNEX, page 260.
810 TAR, page 265.
812 DAB, HJ, RM, JT, page 250.
813 HUB, page 254.
814 JOE, BLU, JO, JACK, page 256.
815 ABERDEEN, page 269.
816 JONN, BRENNAN, page 257.
817 GAZA, JERICHO, page 253.
818 DANSEY, page 250.
819 JT, TH, LD, page 257.
820 HIGH, page 254.
821 GO, DO, LE, page 253.
822 JUDY, page 258.
823 JERICHO, MAE, HATCH, page 256.
824 CHALCO, page 249.
825 AM, IDE, PEN (HIGHMONT), page 244.
827 LORNA, MARS, DAM, ZEN, MAT, page 260.
828 MARS, page 260.
829 ROYAL, RC, CANA, page 263.
830 WAY, page 268.
831 CRIS, JAE, LF, BO, page 250.
832 BIN, DDH, page 248.
833 BIN (COMINCO OPTION), page 246.
834 BIN (NORANDA OPTION), page 248.
835 BIN (PHELPS DODGE OPTION), page 249.
836 BURL, page 249.
837 DEN, page 251.
838 ED, page 251.
839 EDEN, EZRA, JOB, CL, page 251.
840 EZZ, page 252.
841 GA, page 252.
842 GC, page 253.
843 HIGHPOINT, page 254.
844 AM, IDE, VM (MINEX), page 244.
845 JAN, page 255.
846 JEAN, LUX, FORGE, page 255.
847 K, page 258.
848 KR&K, page 259.
849 MEL, page 261.
850 MM, page 261.
851 NEL, page 261.
852 NIM, page 262.
853 PRICE, page 263.
854 PYRITE, MAY, page 263.
855 TAM, CAM, JAC, RAF, page 264.
856 TIP, page 265.
857 KRAIN, page 259.
858 TN, page 266.
860 SHEBA, page 264.
861 VERA, DIA, page 267.
862 WJ, page 268.
863 X-Y, page 269.
864 VALLEY, page 266.
865 AYE, page 245.
866 BETHLEHEM MINE, page 245.
867 JOE, page 256.
868 ANN, page 244.
869 BC, page 245.
870 ELLA, page 252.
871 KEY, MB, page 258.
872 SUNSHINE, LO, LEE, page 269.
873 ACB, PRICE, CN, page 242.

ACCESS: From the Merritt–Spences Bridge highway via the road up Skuhun Creek.

OWNER: D. A. CHAPMAN AND ASSOCIATES LTD., 515 Granville Street, Vancouver 2.

WORK DONE: Fifty-eight miles of total intensity airborne magnetometer survey.

REFERENCE: Assessment Report No. 1828.

AM, IDE, PEN (Highmont) (No. 825, Fig. 35)

LOCATION: Lat. 50° 25.5′–26.5′ Long. 120° 59′–121° 00′ (92I/6E, 7W) On the northwest slope of Gnawed Mountain.

CLAIMS: AM, IDE, and PEN claims, totalling 42.

ACCESS: From the Highland Valley highway via the Lornex road. The property is 28 miles from Ashcroft.

OWNER: HIGHMONT MINING CORP. LTD., 702, 850 West Hastings Street, Vancouver 1, or P.O. Box 700, Ashcroft.

METALS: Copper, molybdenum.

WORK DONE: Ten bulldozer trenches with total length 2,000 feet, 65 diamond-drill holes with total length 35,000 feet, 300 feet of underground workings, and 20 miles of induced polarization survey. The claims were surveyed, underground and surface workings were mapped, and the claims were geologically mapped.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1962, p. 49; 1968, p. 189; Assessment Report No. 290.

DESCRIPTION: Bornite, chalcopyrite, chalcocite, and molybdenite occur as disseminations in and quartz veins in chloritized, sericitized, and feldspathized granodiorite of the Bethlehem (Skeena) and Bethsaida phases of the Guichon Creek batholith. Tourmaline is associated with copper mineralization in some brecciated samples.

AM, IDE, VM (Minex) (No. 844, Fig. 35)

LOCATION: Lat. 50° 25.4′ Long. 120° 59′ (92I/7W) At elevation 6,000 feet, mainly on the south and east slopes of Gnawed Mountain.

CLAIMS: IDE 2, 9, 10, 11; AM 12, 14, 16 to 32; SNOW 1 and 2; VM 30 to 35; ANN 9, 13, 19, a total of 34 claims.

ACCESS: From the Highland Valley road, southward through the Lornex and Highmont properties.

OWNER: Minex Development Ltd.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Three diamond-drill holes, total length 2,107 feet, were drilled.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 191; Assessment Report No. 1757.

DESCRIPTION: Chalcopyrite, bornite, and molybdenite occur in sericitized acid intrusives of the Guichon Creek batholith.

ANN (No. 868, Fig. 35)

LOCATION: Lat. 50° 25.5′ Long. 120° 58.5′ (92I/7W) On Gnawed Mountain.

CLAIMS: ANN 1 to 10, AM 13 and 15 Fractions.

Access: By highway from Ashcroft to the Lornex turnoff, then via the improved dirt road which leads to the Highmont camp.

Owner: TROJAN CONSOLIDATED MINES LTD., 846 West Hastings Street, Vancouver 1 (through B.X. MINING CO. LTD., wholly owned subsidiary).

Metal: Copper.

Work Done: Ten diamond-drill holes, with total footage 5,736 feet, were drilled and logged. The property was worked on by Anaconda American Brass Limited in 1964 and 1965.

References: *Minister of Mines, B.C.*, Ann. Repts., 1964, p. 89; 1965, p. 148.

Description: Chalcopyrite, bornite, primary chalcocite, specular hematite, and molybdenite occur in the drill core. Rocks of the Bethlehem and Bethsaida phases of the Guichon Creek batholith and Gnawed Mountain porphyries were intersected. Argillic alteration and secondary potash feldspar were encountered.

AYE (No. 865, Fig. 35)

Location: Lat. 50° 29′ Long. 121° 01′ (92I/6E)
At elevation 4,000 feet; the claims cover Indian Reserve No. 13, which encloses part of Quiltanton Lake.

Claims: AYE 1 to 16.

Access: The claims adjoin the Highland Valley road south of Quiltanton Lake.

Owner: DARKHAWK MINES LTD., 323, 409 Granville Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: One and one-half miles of road was constructed on the property and the seven diamond-drill holes completed to date total 7,000 feet.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 182.

Description: Drilling has revealed disseminated chalcopyrite and molybdenite mineralization in hydrothermally altered Bethsaida granodiorite in holes 4 and 6. No surface outcroppings occur on the property and overburden depths of 500 to 600 feet have been reported for each drill-hole. In holes 1, 2, and 3 near the south shore of Quiltanton Lake, 300 to 500 feet of Tertiary volcanic and sedimentary rocks underlie the overburden.

BC (No. 869, Fig. 35)

Location: Lat. 50° 38′ Long. 121° 14′ (92I/11E)
On Barnard Creek, 4 miles south of Barnes Lake.

Claims: BC 1 to 37 (formerly TJ claims).

Access: By paved road, 6 miles from Ashcroft.

Owner: CROYDON MINES LTD., 108, 718 Granville Street, Vancouver 2.

Metal: Copper.

Work Done: Geochemical soil survey, 1,057 samples collected and analysed.

BETHLEHEM MINE (No. 866, Fig. 35)

By David Smith

Location: Lat. 50° 29.5′ Long. 120° 59′ (92I/2W)
On the north side of Highland Valley.

Claims: The company holds 64 Crown-granted and 374 recorded mineral claims and fractions.

Access: By paved road from Ashcroft, a distance of 30 miles.

OWNER: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1; mine address, P.O. Box 520, Ashcroft; T. P. Liss, general manager; C. W. Overton, assistant general manager; J. W. Smith, manager, surface engineering; L. H. Hunter, manager, pit production.

METAL: Copper (*see* Table 12 for production).

WORK DONE:

Bethlehem mine is presently working on a continuous three-shift basis with production coming from the Jersey pit. In August, 1969, stripping operations were commenced on the Huestis orebody which lies directly west of the Jersey pit. A total of 1,144,465 tons of overburden and rock waste was stripped from this area in 1969.

Major equipment presently in service includes seventeen Haulpak 50-ton trucks, three 88-B Bucyrus-Erie shovels, two 475 Michigan loaders, two 45-R rotary drills, three D-8 and one D-6 tractors, and two road graders.

By September, 1969, the mill was operating at a capacity of 15,000 tons per day. The entire production from the mine is trucked to wharves in North Vancouver for eventual shipment to Japan.

Construction on the property included additions to the pit shops and mine offices, a tire storage area, and a new carpenter shop.

During 1969, diamond and percussion drilling work was done on many areas of Bethlehem's property. Twenty-one diamond-drill holes totalling 24,700 feet were drilled in the Lake zone adjacent to the Valley Copper orebody (*see* p. 267). In addition, 32,000 feet of percussion drilling was done on widely spaced centres to test areas covered by medium depths of overburden.

A radio-controlled crane has been installed in the grinding bay and a 5-horsepower service hoist has been installed for the fine-ore bin. Two dust collection fans of 15 and 6 horsepower respectively were installed in the mill and in No. 18 conveyor way. A 12-horsepower cooling fan was installed on No. 7 mill motor. A 75-horsepower vertical sump pump and two 125-horsepower tailings pumps were installed. A 5-horsepower screw conveyor was installed for dryer feed. Two 100-horsepower pumps were installed on the barge in the reclaim water pond.

In 1969 the number of employees reached 350. Although no housing is provided at the mine-site, townhouses and apartment units are provided for employees in Ashcroft, and most employees commute from there.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 179.

BIN (Cominco option) (No. 833, Fig. 35)

LOCATION: Lat. 50° 19.2′ Long. 121° 01.8′ (92I/6E)
Junction of Skuhost and Skuhun Creeks, 15 miles southeast of Spences Bridge, at elevations of 3,000 to 4,500 feet.

CLAIMS: BIN 29 to 48, 63, 64, 79 to 128, 163, 164; BIN 115, 162, 165, 166 Fractions; BUNNY 1 Fraction.

ACCESS: By highway from Merritt or Spences Bridge to the Skuhun Creek turnoff, then eastward along Skuhun Creek to the junction with Skuhost Creek.

OWNER: B. I. Nesbitt.

OPERATOR: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

WORK DONE: Seismic survey along 4 lines with total length 7,000 feet on claims BIN 98, 163, 164, and 166 Fraction. Line-cutting on BIN claims 79 to 94, 96 to 106, 111 to 114, 116 to 128, 163, 164, and 115, 162, and 166 Frac-

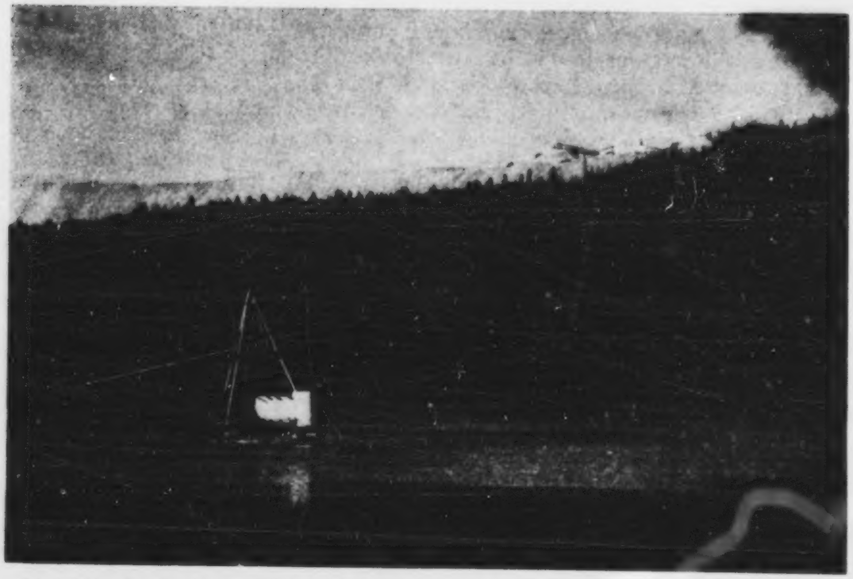


Plate XA.—Exploration drilling by Bethlehem Copper Corporation Ltd. on the Valley ore zone beneath Quiltanton Lake. Waste dump and Bethlehem concentrator on the skyline.

Plate XB.—The start of mining operations in the Brenda open pit, view looking south.

tions. Geologic mapping at 1 inch to 1,000 feet, a partial geochemical survey, and 26.3 miles of induced polarization survey were done. Four percussion holes, with total length 470 feet, were drilled.

REFERENCES: Assessment Reports Nos. 1944A, 1944B, 2085, and 2086.

DESCRIPTION: The seismic survey indicates bedrock depths of at least 375 feet at the junction of Skuhost and Skuhun Creeks. Line-cutting was done in preparation for an induced polarization survey. The northern part of the property is underlain by Bethsaida granodiorite, west of Skuhost Creek, which is inferred to be a fault valley, Chataway granodiorite and Guichon quartz diorite crop out. South of Skuhun Creek, which is also inferred to be a fault, the rocks were mapped predominantly as Witches Brook. Bornite and chalcopyrite were found in minor quantities along fractures in the intrusive rocks; chalcocite also forms blebs in leucocratic dykes. Weak propyllitic alteration occurs.

BIN, DDH (No. 832, Fig. 35)

LOCATION: Lat. 50° 18′ Long. 121° 04′ (92I/6E)
At evelations of 2,500 to 4,000 feet, on the south slope of Skwilkwakwil Mountain.

CLAIMS: BIN 129 to 151; DDH 1 and 2; DDH 3 and 6 Fractions.

ACCESS: The Skuhun Creek road which is reached from the Merritt–Spences Bridge highway passes through the property about 8 miles from the highway.

OWNER: B. I. Nesbitt.

OPERATOR: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geological mapping at 1 inch to 1,000 feet was carried out over the property. A 20-sample geochemical orientation survey with lines at 400 feet and stations at 200-foot intervals was carried out on BIN 134 in an area of known mineralization. Line-cutting and 11.2 line-miles of induced polarization survey were run over the BIN 133 to 148 claims. Two percussion holes, with total length 370 feet, were drilled.

REFERENCES: Assessment Reports Nos. 2087, 2088, and 2089.

DESCRIPTION: Overburden is extensive and only one rock unit, the Guichon phase of the Guichon Creek batholith, was found. Cutting this are slightly mineralized leucocratic dykes and swarms of porphyritic basic dykes. Two sets of faults trend southeasterly and south-southeasterly. Bornite is the only primary ore mineral found on the property and occurs as irregular masses within the leucocratic dykes. Weak chloritization accompanies mineralization. Malachite and azurite were found in a shear zone at the north end of the property.

BIN (Noranda option) (No. 834, Fig. 35)

LOCATION: Lat. 50° 22′ Long. 121° 04′ (92I/6E)
On Skuhost Creek, 14 miles southeast of Spences Bridge.

CLAIMS: BIN 1 to 28, B 1 to 3 Fractions.

ACCESS: By highway from Merritt or Spences Bridge to the Skuhun Creek turnoff; 8 miles from the highway a branch road leads up Skuhost Creek toward the property.

OWNER: Largo Mines Ltd.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Work Done: Induced polarization and resistivity surveys and a geochemical soil survey were done along 30 east-west grid-lines spaced at 400-foot intervals. A total of 25.7 line-miles was covered. Subsequently, 2,000 feet of diamond drilling in five holes was done. A 400-scale geology map was made of the claims.

Reference: Assessment Report No. 1973.

Description: Underlain by quartz diorite of the Guichon Creek batholith with sparse epidote and pink feldspar alteration. Narrow quartz veins in shears may contain bornite and chalcopyrite.

BIN (Phelps Dodge option) (No. 835, Fig. 35)

Location: Lat. 50° 19.5′–21′ Long. 121° 03.5′–06′ (92I/6E)

On the south slope of Skwilkwakwil Mountain, at elevations of 5,000 to 5,300 feet.

Claims: BIN 49 to 62, 65 to 78, a total of 28 claims.

Access: The claims are 21 miles from Spences Bridge and are reached by taking the Skuhun Creek turnoff, then following the branch road up Skuhost Creek.

Owner: Flagstone Mines Limited.

Operator: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

Work Done: Twenty-three line-miles of induced polarization survey was run.

References: Assessment Reports Nos. 230 and 786.

Description: No outcrop was seen on the property.

BURL (No. 836, Fig. 35)

Location: Lat. 50° 33.3′ Long. 120° 58′ (92I/10W)

Two and one-half miles north of Bose Lake.

Claims: BURL 1 to 13.

Access: Highway from Ashcroft to Highland Valley followed for about 25 miles, then the dirt road leading to the Trojan mine and the Krain prospect provides access to the property.

Owner: BURLINGTON MINES LTD., 818, 510 West Hastings Street, Vancouver 2.

Work Done: Thirteen and one-half line-miles of electromagnetic survey (1996A); detailed follow-up electromagnetic survey (1996B). The work was done in December, 1968, and January, 1969.

References: Assessment Reports Nos. 1996A and 1996B.

CHALCO (No. 824, Fig. 35)

Location: Lat. 50° 31.5′–32.5′ Long. 121° 13′–15′ (92I/11E)

Straddle Pukaist Creek at elevations of 3,000 to 3,500 feet.

Claims: CHALCO 1 to 11, 44, 48, 49, 61, 62; CHALCO Fractions 45 and 63.

Access: The claims are south of the Highland Valley highway where it crosses Coldstream Creek.

Owner: TROY SILVER MINES LTD., 305, 540 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: A ground magnetometer survey was carried out along two 7,000-foot north-south base-lines 3,300 feet apart and along 1,000-foot cross-lines spaced at 500-foot intervals. Soil samples were taken over the same grid.

REFERENCES: Assessment Reports Nos. 2110 and 2111.

DESCRIPTION: Copper mineralization occurs in the Hybrid quartz-diorite phase of the Guichon Creek batholith. It is associated with magnetite mineralization.

CRIS, JAE, LF, BO (No. 831, Fig. 35)

LOCATION: Lat. 50° 23′–24′ Long. 121° 00′–01′ (92I/6E)
At elevation 5,000 feet, the property is east of Spaist Mountain and predominantly east of Skuhost Creek.

CLAIMS: LF, BO, JAE, CRIS, TRIO, VINCE, totalling 81 claims.

ACCESS: By four-wheel-drive road from the old Lornex camp or the Pimainus Lake road.

OWNER: Bencrest Mines Ltd.

OPERATOR: IZUMI METAL MINING CO. LTD., 1101, 510 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: The property was geologically mapped at 400 scale, 2,900 soil samples were taken, and 56 line-miles of induced polarization survey was run. Three trenches totalling 800 feet were bulldozed and 3 miles of road was constructed. Three percussion holes, with total footage 990 feet, were drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1965, p. 151; 1966, pp. 160, 161; Assessment Report No. 2277.

DESCRIPTION: Bornite occurs in slightly altered quartz diorite to granodiorite of the Bethlehem and Bethsaida phases of the Guichon batholith.

DAB, HJ, RM, JT (No. 812, Fig. 35)

LOCATION: Lat. 50° 32′–32.5′ Long. 120° 51′–53′ (92I/10W)
Five miles south of Tunkwa Lake, at elevations of 3,500 to 3,800 feet.

CLAIMS: DAB 2, 4 to 16, 18, 19; DAB Fractions 3, 17, 20, 21, 25; HJ 13 to 21; RM 16, 18, 20, 14 Fraction; JT 1 and 2 Fractions.

ACCESS: The Savona–Merritt road which passes Tunkwa Lake passes through the claims.

OWNER: ALWIN MINING COMPANY LTD., 807, 409 Granville Street, Vancouver 2.

WORK DONE: Cross-lines were cut at 400-foot intervals along the two base-lines; 189 soil samples were taken at 100-foot stations.

REFERENCES: Assessment Reports Nos. 1787 and 2069.

DANSEY (No. 818, Fig. 35)

LOCATION: Lat. 50° 31′–33′ Long. 120° 52′–54′ (92I/10W)
Three and one-half miles east-northeast of Bose Lake, at elevations of 3,500 to 4,400 feet.

CLAIMS: TOM, JB, IG No. 1 Fraction, MIKE, BILL.

ACCESS: Two miles from the Four Corners toward Tunkwa Lake, a four-wheel-drive road leads westward to the property.

OWNER: North Pacific Mines Ltd.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

WORK DONE: The geology of the property was mapped at 400 scale along and around cut-lines spaced at 400-foot or 800-foot intervals; 3,225 soil samples were taken from the grey C horizon and the lower part of the B horizon at 200-foot intervals throughout the grid. Induced polarization surveys totalled 5 line-miles on the TOM and JB claims and 7.7 miles on the MIKE and BILL claims. Fifteen percussion holes, with total length 4,180 feet, were drilled to test the results of the other surveys.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 176; Assessment Reports Nos. 1934, 1935, 2066, 2281, and 2282.

DESCRIPTION: The property straddles the contact between Guichon granodiorite and fine-grained, older, grey granodiorite. The Guichon granodiorite was contaminated by the older rock along the contact. Pyrite, magnetite, chalcopyrite, and some molybdenite occur in shear zones in altered granodiorite. Biotite and hornblende in the sheared rock are chloritized, feldspar is sericitized, and secondary potash feldspar occurs.

DEN (No. 837, Fig. 35)

LOCATION: Lat. 50° 32′ Long. 121° 03′ (92I/11E)
At elevations of 4,000 to 5,000 feet.

CLAIMS: DEN 1 to 69.

ACCESS: The property adjoins the Highland Valley highway north of Indian Reserve No. 12.

OWNER: Adera Mining Limited.

OPERATOR: BETHLEHEM COPPER CORPORATION LTD., P.O. Box 520, Ashcroft.

METAL: Copper.

WORK DONE: Three and one-half miles of road was constructed to facilitate 1,218 feet of diamond drilling in two holes and 2,590 feet of percussion drilling in nine holes. A geologic map was made at 500 scale for most of the claim group.

REFERENCES: *Minister of Mines, B.C.*, Ann Rept., 1968, p. 175; Assessment Reports Nos. 990 and 1575.

DESCRIPTION: Traces of bornite and chalcopyrite are present in joints in intrusive rocks of the Guichon Creek batholith.

ED (No. 838, Fig. 35)

LOCATION: Lat. 50° 34′–36′ Long. 121° 08′–10′ (92I/11E)
On Woods Creek, 7 miles northwest of Quiltanton Lake.

CLAIMS: Ed claims, totalling 70.

ACCESS: Is north of the Highland Valley road and reached by 1½ miles of fire-access road about 18 miles from Ashcroft.

OWNER: Blue Star Mines Limited.

OPERATOR: ROLLING HILLS COPPER MINES LIMITED, P.O. Box 4183, Vancouver 9.

WORK DONE: Two percussion holes, with total footage 370 feet, were drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 176; Assessment Report No. 1740.

EDEN, EZRA, JOB, CL (No. 839, Fig. 35)

LOCATION: Lat. 50° 30′ Long. 120° 52′ (92I/10W)
At elevations of 4,000 to 5,000 feet, north of Witches Brook and between Bose Lake and Guichon Creek.

CLAIMS: EDEN, EZRA, JOB, CL claims and INDIAN Fractions, totalling 78 claims.

ACCESS: About 35 miles from Ashcroft, a short distance west of the Jericho camp, a branch road north from the Highland Valley road leads to the property, alternatively from Savona past Tunkwa Lake to a point 2 miles north of the Four Corners.

OWNERS: VANANDA EXPLORATIONS LTD. (50 per cent) and NEW INDIAN MINES LTD. (50 per cent), 616, 850 West Hastings Street, Vancouver 1.

WORK DONE: Fifteen line-miles of induced polarization survey was done on the EZRA claims and 10 miles on lines spaced 500 feet apart on the CL claims. Geochemical and magnetometer surveys had been made previously.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 180; Assessment Reports Nos. 606, 711, 1868, 1976, and 2114.

DESCRIPTION: Disseminated chalcopyrite occurs in Guichon Creek batholith intrusive rocks on the property.

ELLA (No. 870, Fig. 35)

LOCATION: Lat. 50° 33.6′–36.1′ Long. 120° 51.1′–55′ (92I/10W)
Adjoining Tunkwa Lake to the southwest.

CLAIMS: ELLA 1 to 20, 22, 29 to 40, 47 to 66, 84 to 93, 94 Fraction, 95 Fraction.

ACCESS: By road, 18 miles from Savona.

OWNER: HIGHLAND VALLEY MINES LTD., 520, 885 Dunsmuir Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geological mapping of most of claims, induced polarization survey of 20 line-miles on ELLA 5 to 18, 31, 33, 35, 37, 39 claims.

REFERENCES: Assessment Reports Nos. 2075, 2076, and 2077.

DESCRIPTION: Mineralization associated with shear zones and along contacts of Nicola volcanics and Guichon Creek batholithic rocks.

EZZ (No. 840, Fig. 35)

LOCATION: Lat. 50° 30.2′ Long. 121° 04′ (92I/11E)
Adjoins southwest corner of Indian Reserve No. 12, west side of Big Divide Lake, at elevation 4,100 feet.

CLAIMS: EZZ 19 and 20.

ACCESS: The claims are half a mile north of the OK road, half a mile west of the turnoff to Highland Valley Lodge.

OWNER: ALWIN MINING CO. LTD., 807, 409 Granville Street, Vancouver 2.

WORK DONE: One hundred and twenty-five soil samples taken at 200-foot intervals along north-south lines spaced 200 feet apart were analysed for copper.

REFERENCE: Assessment Report No. 1919.

DESCRIPTION: The claims are extensively mantled by drift and few outcrops occur. No significantly anomalous areas were found.

GA (No. 841, Fig. 35)

LOCATION: Lat. 50° 31′ Long. 120° 49′ (92I/7W)
At elevation 4,050 feet.

CLAIMS: GA 1 to 8, 23 to 40.

ACCESS: The property is southeast of the Four Corners, which is near the junction of Guichon and Witches Brook Creeks, and may be reached by two-wheel-drive road from Merritt, Ashcroft, Savona, or Kamloops.

Owner: Bellex Mines Ltd.

Operator: LORNEX MINING CORPORATION LTD., P.O. Box 430, Ashcroft.

Work Done: Seventeen line-miles of induced polarization survey were run. Two percussion holes totalling 600 feet were drilled.

Reference: Assessment Report No. 2109.

GAZA, JERICHO (No. 817, Fig. 35)

Location: Lat. 50° 26′–27′ Long. 120° 54′–57′ (92I/7W)
At elevation 5,000 feet, southwest of Indian Reserve No. 15.

Claims: Forty claims and fractions identified by numbers and GAP, NAT, BUD, JAY claims, totalling 22 on the Gaza property. JERICHO, BOB, JIM, PRICE, JAMES, GNAT Fractions, totalling 30 on the Jericho property.

Access: A branch road just west of the Jericho camp leads southward from the Highland Valley road to the property.

Owners: Gaza Mines Ltd. and Jericho Mines Ltd.

Operator: TREMAR MINERALS LIMITED, 310, 890 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: A geological map at 1 inch to 100 feet was made, an induced polarization survey of 16.14 line-miles was run on the Gaza property, and some bulldozer stripping was done. An induced polarization survey, 13.13 line-miles, was run on the Jericho property.

References: Assessment Reports Nos. 1882 and 2052.

Description: Copper mineralization occurs in shears in sericitized granodiorite.

GC (No. 842, Fig. 35)

Location: Lat. 50° 36′ Long. 121° 12′ (92I/11E)
Three miles southwest of Glossy Mountain, south of the headwaters of Barnard Creek.

Claims: GC 69 to 78, 85 to 94.

Access: The property is east of the Highland Valley highway, about 10 miles from Ashcroft.

Owner: ALBERT A. ABLETT, 1714 Clifford Avenue, Brocklehurst.

Work Done: Twenty-three miles of line were cut at 400-foot intervals on the claims.

Reference: Assessment Report No. 1988.

GO, DO, LE (No. 821, Fig. 35)

Location: Lat. 50° 35′ Long. 121° 00′ (92I/10W, 11E)
At elevations of 5,000 to 5,700 feet, 2 miles southwest of Forge Mountain.

Claims: LE 5 to 13, 27 to 39, 62, 63, 65 to 86; GO 1 to 21; DO 1 to 16.

Access: An access road from the Bethlehem highway one-half mile west of the concentrator leads northward past the Krain camp to the property.

Owner: Cadco Enterprises Ltd.

Operator: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5 (under agreement with Brameda Resources Ltd.).

Work Done: A grid for the induced polarization survey was cut, then 4.65 line-miles of induced polarization survey run over claims LE 31 to 39, 84 and 86, and 17.51 line-miles of induced polarization survey run over claims GO 19 to

32, DO 1 and 10 to 16, LE 5 to 15 and 66 to 72. The claims were geologically mapped at 400 scale. One 200-foot trench was bulldozed and 2,496 feet of diamond drilling in five holes completed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 178; Assessment Reports Nos. 2018 and 2091.

DESCRIPTION: Guichon granodiorite, which is locally fractured with epidote and tourmaline filling the joints and shears, underlies part of the property. Elsewhere the granodiorite is covered by Tertiary Kamloops volcanic rocks. Agglomerates and vesicular to amygdaloidal basalts predominate.

HIGH (No. 820, Fig. 35)

LOCATION: Lat. 50° 35.5′–38′ Long. 120° 51′–56′ (92I/10W) Immediately west of Tunkwa Lake.

CLAIMS: HIGH 1 to 100; FOR 7, 8, 17 to 24; ELLA 77 to 93; WA 11 to 14.

ACCESS: From the Savona–Merritt road, which passes Tunkwa Lake.

OWNERS: Arlington Silver Mines Ltd. and Largo Mines Ltd.

OPERATOR: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

WORK DONE: Grid-lines at 800-foot intervals totalling 52 line-miles were cut and magnetic readings taken at 100-foot intervals, induced polarization readings at 200-foot intervals, and soil samples at 400-foot intervals along them. One hole 386 feet long was drilled, using NQ wireline.

REFERENCE: Assessment Report No. 2142.

DESCRIPTION: No outcrop was found on the property but many angular blocks of vesicular lava occur. The magnetic results suggest the eastern contact of the Guichon Creek batholith passes through the western part of the property.

HIGHPOINT (No. 843, Fig. 35)

LOCATION: Lat. 50° 22′ Long. 121° 02.5′ (92I/6E) On Skuhost Creek, 2 miles southeast of Spaist Mountain, at elevations of 3,500 to 4,500 feet.

CLAIMS: DEB 1 to 26, 61 to 72, 81 to 93, 93, 94, 94 to 98, 1 Fraction, 2 Fraction, 1 to 6 Fractions.

ACCESS: By two-wheel-drive road up Skuhum Creek from the Merritt–Spences Bridge highway, then along Skuhost Creek.

OWNERS: Highpoint Mines Ltd. and Ken Foote.

OPERATOR: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

WORK DONE: Five line-miles of induced polarization survey were run and seismic depth tests were made.

REFERENCES: *Geol. Surv., Canada,* Mem. 262; Assessment Report No. 1898.

DESCRIPTION: The property is underlain by granodiorite of the Guichon Creek batholith.

HUB (No. 813, Fig. 35)

LOCATION: Lat. 50° 38′–40′ Long. 121° 08.5′–09′ (92I/11E) Five miles southeast of Ashcroft.

CLAIMS: HUB 22 to 40.

ACCESS: Logging-roads from the vicinity of Barnes Lake lead to the property.

OWNER: WESTVIEW MINING CO. LTD., 510, 890 West Pender Street, Vancouver 1.

Work Done: Soil samples were taken at 200-foot intervals along the grid-lines, which are spaced 400 feet apart along the north-south base-line.

Reference: Assessment Report No. 2100.

Description: The geophysical surveys suggest that Kamloops volcanic rocks occur at the south end and in the northeast corner of the claims.

JACK (No. 803, Fig. 35)

Location: Lat. 50° 33.3′–33.7′ Long. 121° 01′–02.5′ (92I/11E)
At the headwaters of Burr Creek, north of South Forge Mountain, at elevations of 5,400 to 6,000 feet.

Claims: JACK 1 to 6.

Access: From the Bethlehem highway 1 mile west of the concentrator an unpaved secondary road past South Forge Mountain leads to the property.

Owner: North Pacific Mines Ltd.

Operator: NORANDA EXPLORATION COMPANY, LIMITED (in agreement with Brameda Resources Ltd.), 1050 Davie Street, Vancouver 5.

Work Done: Six east-west lines at 800-foot intervals were surveyed by the induced polarization method with 400-foot spreads. Six line-miles were covered.

Reference: Assessment Report No. 1915.

JAN (No. 845, Fig. 35)

Location: Lat. 50° 29′ Long. 121° 08′ (92I/6E)
At elevation 5,000 feet, 5 miles west-southwest of Quiltanton Lake.

Claims: JAN, HI.

Access: The claims are 6 miles westward by road from Highland Valley Lodge.

Owner: Centura Mining Co. Ltd.

Operator: McINTYRE PORCUPINE MINES LIMITED, 312, 409 Granville Street, Vancouver 2.

Metal: Copper.

Work Done: Magnetometer and induced polarization surveys were conducted and soil samples were taken for analysis. Three diamond-drill holes totalled 1,700 feet.

Reference: Assessment Report No. 1739.

Description: Copper mineralization occurs in fractures and shears in sericitized intrusive rocks.

JEAN, LUX, FORGE (No. 846, Fig. 35)

Location: Lat. 50° 34.5′ Long. 120° 57.3′ (92I/10W)
At elevations of 4,000 to 4,500 feet.

Claims: JEAN, LUX, FORGE, 102 claims.

Access: The dirt road which branches off the Bethlehem Copper road and passes through the South Seas camp crosses the property. The property is centred 4 miles north of Bose Lake.

Operator: KALCO VALLEY MINES LTD., 713, 744 West Hastings Street, Vancouver 1.

Work Done: Line-cutting for geological purposes, chain and compass traversing, and a search for old posts were carried out.

Reference: Assessment Report No. 2065.

JERICHO, MAE, HATCH (No. 823, Fig. 35)

LOCATION: Lat. 50° 27′–29′ Long. 120° 51′–54′ (92I/7W)
East and northeast of Indian Reserve No. 16 and north of Gump Lake.

CLAIMS: JERICHO 2 to 11, 38, 39, 41 to 44, 91, 92, 93; MAE 1 to 6; HATCH 1 to 3.

ACCESS: The Highland Valley road passes through the property approximately 5 miles east of Quiltanton Lake.

OPERATOR: J. MEIKLE, P.O. Box 522, Station A, Vancouver 1.

WORK DONE: An aeromagnetic survey of 17 flight-lines at 600-foot intervals was made.

REFERENCE: Assessment Report No. 2055.

JOE (No. 867, Fig. 35)

LOCATION: Lat. 50° 38.4′ Long. 121° 14′ (92I/11E)
At elevations of 4,000 to 4,500 feet, straddling the Highland Valley highway 2 miles northerly from the point the highway crosses Coldstream Creek.

CLAIMS: JOE 1 to 6 and 11 Fraction.

ACCESS: From Ashcroft by 11 miles of highway.

OWNER: TRUMPETER MINES LTD., 1403, 1030 West Georgia Street, Vancouver 5.

WORK DONE: A grid consisting of a cut and flagged base-line with cross-lines at 400-foot intervals and 100-foot stations on the cross-lines was used as the basis for a magnetometer survey. Soil samples were also collected at each station.

REFERENCES: Assessment Reports Nos. 1832 and 1860.

DESCRIPTION: The property is underlain by hornblende biotite diorite, a phase of the Guichon Creek batholith.

JOE, BET (No. 805, Fig. 35)

LOCATION: Lat. 50° 27.5′–28′ Long. 120° 54′–58′ (92I/7W)
The claims occupy a strip of land at elevation 4,000 to 4,400 feet, which extends from south of Indian Reserve No. 14 to north of Indian Reserve No. 15.

CLAIMS: JOE 1 to 6, 7 and 8 Fractions; BET 1 to 6, 9 to 12.

ACCESS: The Highland Valley road passes through the property.

OWNER: HIGHLAND VALLEY MINES LTD., 520, 885 Dunsmuir Street, Vancouver 1.

METAL: Copper.

WORK DONE: All the claims were geologically mapped at 1 inch equals 100 feet. An induced polarization survey of about 26 line-miles was conducted over the claims. Survey lines were spaced 400 feet and run east-west.

REFERENCE: Assessment Report No. 2012.

DESCRIPTION: Outcrops occur on only three claims. Low-grade copper mineralization was seen in a few boulders in two trenches on the JOE 7 Fraction and in cuttings from an old rotary drill hole on the JOE 6.

JOE, BLU, JO, JACK (No. 814, Fig. 35)

LOCATION: Lat. 50° 34′–36′ Long. 121° 03.5′–06′ (92I/11E)
Northeast of Cinder Hill, surrounding the Glossy Crown grants.

CLAIMS: BLU 1 to 8; JOY 1 to 6, 8, 10, 12; JO 1 to 11; JOE 1 to 15; JAE 1 to 6; JACK 1 to 8; JAY 1, 2, 4, 6, 8; JOY 1 and 2 Fractions.

ACCESS: About 17 miles from Ashcroft a four-wheel-drive road may be followed northward past the east side of Cinder Hill to the property.

OWNER: CONTINENTAL CINCH MINES LTD., 1720, 777 Hornby Street, Vancouver 1.

METAL: Copper.

WORK DONE: A north-south base-line was established and cross-lines cut at 400-foot intervals from it. Reconnaissance geologic mapping was carried out at 1 inch to 400 feet. Soil samples usually at 4 to 8 inches depth were taken at 200-foot stations along the cross-lines. Magnetometer and induced polarization surveys were conducted over the property.

REFERENCES: Assessment Reports Nos. 2193 and 2194.

DESCRIPTION: Overburden is extensive and part of the property is underlain by light grey to reddish vesicular basalts of the Tertiary Kamloops Group. Intrusive rocks, hornblende-biotite granodiorites, are common only in the central and northwest portions of the claims. Shears in them are mineralized with quartz, tourmaline, epidote, chalcopyrite, bornite, chalcocite, and malachite. Alteration minerals include secondary biotite, potash feldspar, sericite, and chlorite.

JONN, BRENNAN (No. 816, Fig. 35)

LOCATION: Lat. 50° 26′ Long. 121° 09′ (92I/6E)
At elevation 5,000 feet.

CLAIMS: JON, JONN, BRENNAN, BAN, totalling 16, formerly BON, MC.

ACCESS: From the OK (Alwin) road.

OWNER: MOLLIE MAC MINES LTD., 1770, 777 Hornby Street, Vancouver 1.

METAL: Copper.

WORK DONE: Eight miles of induced polarization survey done and 265 soil samples taken covered the JONN, BRENNAN, and BAN claims. One and one-half miles of road was constructed along the western boundary of the property.

REFERENCES: Assessment Reports Nos. 2234 and 2235.

DESCRIPTION: Chalcopyrite and malachite occur as disseminations in granodiorite of the Bethsaida phase of the Guichon Creek batholith.

JT, TH, LD (No. 819, Fig. 35)

LOCATION: Lat. 50° 17′–19′ Long. 121° 00′–03′ (92I/6E)
Northwest of Abbott Lake, at elevations of 3,000 to 5,000 feet.

CLAIMS: JT 1 to 40, LD 1 to 9 Fractions, TH 1 to 20, 30, 32, 41, 42, 44, 63, 64.

ACCESS: From the Merritt–Spences Bridge highway via the Skuhun Creek road. The property is 8 miles from the highway.

OWNER: Highland Queen Mines (1968) Ltd.

OPERATOR: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

WORK DONE: The property was geologically mapped at 1,000 scale; 18.5 line-miles of induced polarization survey covered claims JT 1 to 16, 21 to 27, and LD 4 Fraction. Fifteen seepage samples were taken from JT 9 and 10 and 14 silt samples from JT 9, 10, and 12 and LD 4 Fraction. One 380-foot diamond-drill hole was bored, and five percussion holes, with total length 790 feet, were drilled.

REFERENCES: Assessment Reports Nos. 2119, 2120, and 2121.

Description: Hematite occurs as disseminated grains in moderately chloritized granodiorite of the Skeena (Bethlehem) phase of the Guichon Creek batholith. No copper mineralization was found. Mapping indicates that the property is also underlain by granodiorite of the Chataway, Guichon, and Witches Brook phases of the batholith.

JUDY (No. 822, Fig. 35)

Location: Lat. 50° 30′–31′ Long. 120° 46′–48 (92I/7W, 10W) Northeast of Logan Lake, at elevations of 3,900 to 4,900 feet.

Claims: JUDY 1 to 40.

Access: The property is 1 mile east of the Four Corners on the road to Kamloops. The Four Corners is northeast of the confluence of Guichon and Chartrand Creeks.

Owner: NEWMINE DEVELOPMENT LTD., 2601, 2020 Haro Street, Vancouver 5.

Work Done: Forty-three and nine-tenths line-miles of east-west lines at 400-foot intervals was cut; 1,133 soil samples were collected from the B horizon at 200-foot intervals.

Reference: Assessment Report No. 2126.

Description: The JUDY claims are underlain by rocks of the Triassic Nicola Group.

K (No. 847, Fig. 35)

Location: Lat. 50° 35′ Long. 121° 15′ (92I/11E, 11W) At elevation 4,000 feet.

Claims: K 1 to 24, TNT 1 and 2.

Access: The property is 13 miles from Ashcroft along the Highland Valley highway.

Owner: K. Owens, of Ashcroft.

Operator: BETHLEHEM COPPER CORPORATION LTD., P.O. Box 520, Ashcroft.

Metal: Copper.

Work Done: Data were collected to produce a 500-scale geologic map, 1½ miles of road was constructed to provide access to sites where two percussion holes totalling 600 feet were drilled on claims K 1 and K 3. Utica Mines Ltd. worked on the property in 1964.

Description: Copper minerals occur in veins and shear zones in propylitized intrusive rocks of the Guichon Creek batholith.

KEY, MB (No. 871, Fig. 35)

Location: Lat. 50° 20.5′ Long. 121° 08.2′ (92I/6E) Adjacent to east boundary of Indian Reserve No. 12, just east of Clapperton.

Claims: KEY 9 to 52, MB 5 to 66.

Access: By road, 25 miles from Ashcroft.

Operator: PYRAMID MINING CO. LTD., 640, 890 West Pender Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: Induced polarization survey covering 25 line-miles on MB 5 to 10, 18, 20, 22, 25 to 32, 53 to 66, and KEY 35, 37, and 39 claims.

References: Assessment Reports Nos. 2220 and 2221.

KRAIN (No. 857, Fig. 35)

Location: Lat. 50° 34′ Long. 121° 00′ (92I/10W, 11E)
One mile northwest of Bose Hill, at elevations of 5,200 to 5,650 feet.

Claims: DW 1 Fraction, 2 Fraction, KRAIN 1 to 14, 1 Fraction, 6 Fraction, KRAIN COPPER, DW 1 to 6.

Access: By two-wheel-drive road north from the Highland Valley highway, 1 mile west of the Bethlehem mill.

Owners: Comet Krain Mining Corp. Ltd., Estey Agencies Ltd. (trustee) (under option to North Pacific Mines Ltd.).

Operator: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5 (under agreement with Brameda Resources Ltd.).

Metal: Copper.

Work Done: Geochemical soil samples were taken at 200-foot intervals along east-west lines on the DW 1 to 6 claims. An induced polarization survey of 22.5 line-miles was carried out and seven percussion holes, with total length 3,160 feet, drilled to test the results. The KRAIN 3 to 6 and KRAIN COPPER claims were geologically mapped at 1 inch to 400 feet.

References: *Minister of Mines, B.C.,* Ann. Repts., 1907, p. 136; 1917, p. 225; 1925, p. 179; 1955, p. 37; 1956, p. 43; 1957, p. 24; 1958, pp. 21, 67; 1960, p. 25; 1965, p. 145; 1966, p. 151; 1967, p. 149; Assessment Reports Nos. 172, 207, 1917, and 2227.

Description: A zone of primary mineralization (pyrite, chalcopyrite, bornite, molybdenite) adjoins a shallow zone of secondary mineralization (malachite, chrysocolla, azurite, cuprite, native copper, chalcocite) and occurs in altered quartz diorite and porphyry near Tertiary flows. The zone is 1,200 by 200 feet, deepest drill intersection at 400 to 500 feet.

KR&K (No. 848, Fig. 35)

Location: Lat. 50° 29′ Long. 120° 49.4′ (92I/7W)
At elevations of 4,400 to 4,500 feet.

Claims: KR&K 1 to 30.

Access: The property is immediately southeast of the Four Corners junction along Guichon Creek where the roads from Savona, Merritt, Kamloops, and the Highland Valley meet.

Owner: NICOLA COPPER MINES LTD., 201, 535 Howe Street, Vancouver 1.

Work Done: Induced polarization survey was done along three lines spaced 200 feet apart, totalling 7,000 feet.

Reference: Assessment Report No. 2064.

LAKE (No. 802, Fig. 35)

Location: Lat. 50° 29′ Long. 121° 02′ (92I/6E)
Adjoins Valley Copper at elevation 4,000 feet.

Claims: LTK, HH, EA, AL, LAKE, and DEN.

Access: The Highland Valley highway crosses the property 25 miles from Ashcroft.

Owner: BETHLEHEM COPPER CORPORATION LTD., P.O. Box 520, Ashcroft.

Metal: Copper.

Work Done: Twenty-one diamond-drill holes have total footage of 24,678 feet.

DESCRIPTION: This porphyry copper deposit has bornite greater than chalcopyrite, greater than molybdenite, in sericitized, feldspathized quartz-veined granodiorite. The Lake orebody contains 200 million tons of 0.45 per cent copper and is part of the Valley orebody being explored by Valley Copper Mines Limited. Overburden depths on the Lake orebody vary from several hundred to more than 800 feet.

LORNA, MARS, DAM, ZEN, MAT (No. 827, Fig. 35)

LOCATION: Lat. 50° 25′–26′ Long. 121° 07′–09′ (92I/6E)
Three miles south-southwest of Calling Lake, at elevation 5,000 feet.

CLAIMS: LORNA, MARS, DAM, ZEN, and MAT, totalling 96 claims.

ACCESS: From the Highland Valley highway via the OK (Alwin) road past Calling Lake.

OWNER: ZENITH MINING CORPORATION LTD., 1770, 777 Hornby Street, Vancouver 1.

METAL: Copper.

WORK DONE: Thirty-seven miles of induced polarization line was run over the claims, 1,100 soil samples were taken on the MAT, MARS, and DAM claims, and two trenches, with total length 300 feet, were bulldozed. Two miles of road was constructed to facilitate the work.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 192; Assessment Reports Nos. 1137, 1772, 2233, and 2235.

DESCRIPTION: Disseminated bornite, chalcopyrite, and pyrite occur in granodiorite of the Guichon phase of the Guichon Creek batholith.

LORNEX (No. 809, Fig. 35)

By David Smith

LOCATION: Lat. 50° 28′ Long. 121° 01′ (92I/6E)
In Highland Valley, 2 miles south of Quiltanton Lake.

CLAIMS: Company owns 97 mineral leases and 85 claims.

ACCESS: Accessible from Highland Valley highway via 3 miles of gravel road.

OWNER: LORNEX MINING CORPORATION LTD., 202, 580 Granville Street, Vancouver 2. The company is controlled by Rio Algom Mines Limited (36.40 per cent) and The Yukon Consolidated Gold Corporation Limited (26.89 per cent).

METALS: Copper, molybdenum.

WORK DONE: Logging off 100 acres of pit area. Built 3,500 feet of pit perimeter road. Built 4,000 feet of general access road from Highland Valley highway. Crusher access road is being constructed. Company has also developed three benches of the pit.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1965, p. 148; 1966, pp. 155–158; 1967, pp. 157, 158; 1968, p. 187; Assessment Report No. 290.

MARS (No. 828, Fig. 35)

LOCATION: Lat. 50° 32.5′ Long. 121° 00.7′ (92I/11E)
At elevations of 5,600 to 6,100 feet, about 4,000 feet west of the Trojan shaft.

CLAIMS: MARS 2.

ACCESS: A road which branches northward from the highway to Bethlehem Copper, one-half mile west of the concentrator, leads to the property.

OWNER: South Seas Mining Limited.

Operator: PÉCHINEY DEVELOPMENT LIMITED, 619, 744 West Hastings Street, Vancouver 1.

Work Done: Fifty-one soil samples were taken at 100-foot intervals along lines 400 feet apart and a magnetometer survey was run over the same grid.

Reference: Assessment Report No. 2158.

Description: Volcanic rocks crop out near the top of South Forge Mountain at the northwest corner of the claim.

MEL (No. 849, Fig. 35)

Location: Lat. 50° 23.5′ Long. 121° 10.5′ (92I/6E)
Four miles west-southwest of the west end of Pimainus Lake and about 8 miles east of Spences Bridge, at elevations of 4,000 to 4,500 feet.

Claims: MEL 1 to 16.

Access: The gravel road which passes through Lornex may be followed past Pimainus Lake and southward to the property at the head of Kloklowuck Creek.

Owner: BOMARC MINING CO. LTD., 403, 540 Burrard Street, Vancouver 1.

Work Done: Soil samples at 200-foot intervals were taken along north-trending lines spaced at 500-foot intervals along two east-west location lines. No anomalous areas were found.

Reference: Assessment Report No. 2041.

MM (No. 850, Fig. 35)

Location: Lat. 50° 36.5′–41′ Long. 120° 56′–121° 06′ (92I/10W, 11E)
Covers major parts of upper Barnes and Guichon Creeks.

Claims: JE, MAX, MAXO, NORM, MM, WA, JO, DON, grouped as MM 1 to 12, totalling 480 claims.

Access: From the Highland Valley highway a secondary road past Barnes Lake along Barnes Creek leads to the property at the headwaters of Guichon Creek.

Owner: VALLEY FORGE MINING LTD., 1710, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: One hundred nine and six-tenths miles of grid-lines and claim-lines was surveyed, a further 122 miles of line was cut, and 6.5 miles of access road was built. The property was geologically mapped and 9 miles of induced polarization survey was run.

Reference: Assessment Report No. 2078.

Description: A substantial part of the property is underlain by intrusive rocks of the Guichon Creek batholith. Elsewhere, the intrusive rocks are covered by andesite, basalt, rhyolite, scoria, and tuff-agglomerate of the Tertiary Kamloops Group. A small amount of chalcopyrite was found in quartz diorite east of the upper, northerly flowing part of Guichon Creek.

NEL (No. 851, Fig. 35)

Location: Lat. 50° 33′ Long. 121° 09′ (92I/11E)

Claims: NEL 1 to 24.

Access: The claims are south of the Highland Valley road, about 17 miles from Ashcroft.

Owner: CANWEX EXPLORATIONS LTD., 1666 West Broadway, Vancouver 9.

Work Done: Geological and geochemical surveys of claims NEL 1 to 22, inclusive, along 140,000 feet of chain and compass-line. Lines are 300 to 400 feet apart. Soil samples were taken at 200-foot intervals.

Reference: Assessment Report No. 2043.

Description: The country rock is hybrid granodiorite with xenoliths of metasediment or paragneiss. Narrow feldspar porphyry dykes occur.

NIM (No. 852, Fig. 35)

Location: Lat. 50° 32′ Long. 121° 07′ (92I/11E)
Two miles west of the northwest corner of Indian Reserve No. 12, at elevation 4,000 to 4,900 feet.

Claims: NIM 1 and 2 Fractions, NIM 1 to 22.

Access: The property is south of the Highland Valley highway, about 20 miles from Ashcroft.

Owners: D. R. Foster and New Indian Mines Ltd.

Operator: NEW INDIAN MINES LTD., 616, 850 West Hastings Street, Vancouver 1.

Work Done: North-south lines were cut at 400-foot intervals along the claim location lines.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 183; Assessment Reports Nos. 1019 and 1890.

Description: Disseminated chalcopyrite occurs in intrusive rocks of the Guichon Creek batholith. The claims were sold to Lornex Mining Corporation Ltd. for tailings disposal in December, 1969.

OK (ALWIN) (No. 801, Fig. 35)

Location: Lat. 50° 29′ Long. 121° 06′ (92I/6E)
At elevations 5,400 feet, 3 miles west of Quiltanton Lake.

Claims: Crown-grants: APEX (Lot 3645); OK (Lot 3644); IOU (Lot 3643); OK 5 to 10; EZZ 13, 14, 21, 22; PAL 1 and 1 to 3 Fractions; CALL 1 to 4; ALWIN 1 and 3 Fractions; FBI Fraction, totalling 24 claims.

Access: Five miles of gravel road leads from the Highland Valley highway to the property.

Owner: ALWIN MINING CO. LTD., 807, 409 Granville Street, Vancouver 2. A. R. Wells, superintendent; W. W. Cummings, geologist.

Metals: Copper, silver.

Work Done: The southwest quarter of the property was soil-sampled; 500 samples were taken. Three miles of access road was built and one-half mile of the main road was improved. Nineteen trenches with total length 7,500 feet, were bulldozed. Underground, drifts were extended, test raises were driven on the ore, and a raise driven to intersect the old OK workings. Total underground work was crosscutting, 1,023 feet; raising, 734 feet; sublevel, 130 feet. Twenty-six surface diamond-drill holes totalled 16,185 feet and 29 underground holes 19,377 feet. A 75-kva. generator driven by a D-330 caterpillar was installed to replace the Ford 50-kva. which is now on standby.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 183.

Description: Chalcopyrite and bornite replace(?) sheared Bethsaida granodiorite along east and south 60 degrees east trending fracture systems. Minerals in the country rock are altered to kaolinite, talc, potash feldspar, and sericite. After dilution, reserves for the deposit are estimated to be 1,369,600 tons assaying 2.04 per cent copper.

PRICE (No. 853, Fig. 35)

Location: Lat. 50° 24′ Long. 120° 57.4′ (92I/7W)
The claims enclose Roscoe Lake at elevation 5,300 feet.

Claims: PRICE 1 to 7, 15 to 18, 20, 26, 28 to 30, 50, and 52; RUBY 11 and 12; RUBY Fractions 4, 13, 14, and 25.

Access: Access is from the Merritt–Spences Bridge highway via the Chataway Lodge road which follows Skuhun Creek or southward from the Highland Valley road.

Owners: Stellako Mining Co. Ltd. and Pathfinder Uranium & Nickel Mines Ltd.

Operator: PATHFINDER URANIUM & NICKEL MINES LTD., 201, 714 West Hastings Street, Vancouver 1.

Work Done: An induced polarization survey on east-west lines with 200-foot stations and 400-foot line-spacings was conducted. Geochemical and magnetometer surveys were run to re-examine an area in the western part of the claims.

References: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 163; Assessment Reports Nos. 1937A and 1937B.

PYRITE, MAY (No. 854, Fig. 35)

Location: Lat. 50° 43′–45′ Long. 121° 09′–14′ (92I/11E)
Elevations of 1,500 to 3,500 feet, both north and south of the Thompson River.

Claims: PYRITE 1 to 40, MAY 1 to 50.

Access: The property is reached from Ashcroft via the Highland Valley highway and the road past Barnes Lake.

Owners: A. A. Ablett (PYRITE claims) and Placid Oil Company (MAY claims).

Operator: PLACID OIL COMPANY, 860 Guiness House, Calgary 2, Alta.

Metal: Copper.

Work Done: Ten thousand soil samples were taken at 100-foot intervals over the claims. The geology was mapped at 400 scale. The property was previously called the CORONATION group and old workings were found during exploration.

Reference: Assessment Report No. 2259.

Description: Traces of copper mineralization occur in shears and as disseminations in sericitized intrusive rocks.

ROYAL, RC, CANA (No. 829, Fig. 35)

Location: Lat. 50° 27′ Long. 121° 05′ (92I/6E)
At elevations of 5,300 to 5,600 feet, adjoining Calling Lake on the south and east and covering part of the lake.

Claims: ROYAL, RC, CANA, totalling 23 claims.

Access: From the Highland Valley highway via the OK road to Calling Lake.

Owner: Royal Canadian Ventures Ltd.

Operator: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

Work Done: Sixteen and eight-tenths line-miles of magnetometer survey was conducted over the ROYAL claims. Previous work on the claims included geologic mapping, induced polarization surveying, trenching, and some diamond drilling.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 192; Assessment Reports Nos. 848A, 848B, 854, and 2157.

SHEBA (No. 860, Fig. 35)

LOCATION: Lat. 50° 27′ Long. 120° 59.5′ (92I/7W)
At elevations of 4,500 to 5,500 feet, mainly on the east and north slopes of Gnawed Mountain.

CLAIMS: SHEBA, CU, LYNN, DAWN, J, JAY, DO, MO, DEE, ANN, CS, JJ, totalling 105 claims.

ACCESS: The property may be reached from the Highland Valley highway either via the road through Lornex and Highmont or via the road southward from just west of the Jericho camp.

OWNER: Sheba Copper Mines Limited.

OPERATOR: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METALS: Copper, molybdenum.

WORK DONE: The NORTH HALE claim, LYNN 5 to 8 claims, and LYNN 7, 8, 10, 11 to 16 Fractions were mapped at 1 inch equals 400 feet. An induced polarization survey of 2.6 line-miles covered claims DAWN 1, 2, 5 to 8, and LYNN 1, 2, 5 to 8. The induced polarization results were tested by seven diamond-drill holes, with total length 5,214 feet. One and four-tenths miles of drill access road was constructed.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 193.

DESCRIPTION: Bornite, chalcopyrite, chalcocite, and molybdenite occur as disseminations and veins in rocks of the Bethlehem, Chataway, and Bethsaida phases of the Guichon Creek batholith. Chloritization and potash feldspar alteration occur.

SPA, SKAT, JEFF, SKU (No. 806, Fig. 35)

LOCATION: Lat. 50° 18′–21′ Long. 120° 56′–121° 00′ (92I/7W)
North of Farr Lake, both north and south of Skuhun Creek.

CLAIMS: SPA, SKAT, LARK, ALTA, SKU, JEFF, AL Fraction, SK Fraction, BW, TYNER LAKE, MM, TYNER, BEN, ROB, and ORO claims, totalling 238.

ACCESS: The Skuhun Creek road which branches from the Merritt–Spences Bridge highway at the junction of Skuhun Creek and the Nicola River passes through the property.

OPERATOR: CANEX AERIAL EXPLORATION LTD., 800, 1030 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Early in the year, 20 miles of line was surveyed by induced-polarization methods and a reconnaissance geological survey done. Later in the year, the geology was mapped at 1,000 scale, detailed induced polarization and magnetometer surveys, and two holes with total length 200 feet drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1958, p. 27; Assessment Reports Nos. 1594, 1829, 2177, and 2201.

DESCRIPTION: Bornite is associated with a porphyry dyke and east-northeast striking zones in outcrops on the margin of the claim area.

TAM, KAM, JAC, RAF (No. 855, Fig. 35)

LOCATION: Lat. 50° 29.3′–31.6′ Long. 121° 05′–09′ (92I/11E)
At elevations of 4,000 to 5,500 feet west of Indian Reserve No. 12 and north of Island Lake.

CLAIMS: RAF, TAM, MER, JAC, KAM, CM, totalling 122 claims.

Access: From the Highland Valley highway via the OK road to the Alwin property.

Owner: Cleveland Mining & Smelting Co. Ltd.

Operator: CONSOLIDATED GEM EXPLORATIONS LTD., 2002, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: An induced polarization survey was conducted over claims KAM 13 to 20 (8 line-miles), CM 1 to 10 (10 line-miles), MER 8 to 10, 15 to 20, 22 to 40 (27 line-miles). Three surface diamond-drill holes had a total length of 1,500 feet.

References: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 154; 1967, p. 153; Assessment Reports Nos. 1638, 1837, and 2117.

Description: Bornite, chalcopyrite, and molybdenite occur as disseminations in quartz diorite which is a phase of the Guichon Creek batholith. Twenty RAF and TAM claims were sold to Lornex for tailings disposal on October 31, 1969.

TAR (No. 810, Fig. 35)

Location: Lat. 50° 17.5′ Long. 121° 05′ (92I/6E)

South of Skuhun Creek, about 4 miles from its confluence with the Nicola River, at elevations of 2,800 to 4,200 feet.

Claims: TAR 1 to 16.

Access: By paved road from Merritt or Spences Bridge to the Skuhun Creek turnoff, then all-weather dirt road along the creek to within a thousand feet of the north edge of the claim group.

Owner: HIGHLAND VALLEY MINES LTD., 617, 789 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: Geologic mapping was carried out at scale 1 inch to 400 feet.

Reference: Assessment Report No. 2011.

Description: Underlain by volcanic and sedimentary rocks of the Nicola Group, intrusive rocks of the Guichon Creek batholith, and volcanic rocks of Tertiary age. Copper mineralization of unknown extent occurs in a zone of epidote-orthoclase alteration in the Guichon monzonite intrusive rocks.

TIP (No. 856, Fig. 35)

Location: Lat. 50° 36.5′ Long. 121° 08.7′ (92I/11E)

West of Woods Creek on the south slope of Glossy Mountain, 2,000 feet south of the peak.

Claims: TIP 1 to 12, 17 to 64.

Access: Paved highway from Ashcroft for about 18 miles, then 6 to 7 miles of forest access road.

Owner: GREAT NORTHERN PETROLEUMS & MINES LTD., 1110, 505 Burrard Street, Vancouver 1.

Work Done: Induced polarization survey on 25 line-miles of grid with lines 800 feet apart; soil samples taken at 400-foot intervals were analysed for copper.

Reference: Assessment Report No. 2025.

Description: Underlain by rocks of the Guichon Creek batholith and volcanic rocks of the Tertiary Kamloops Group.

TN (No. 858, Fig. 35)

Location: Lat. 50° 16.4′ Long. 121° 02.8′ (92I/6E)
Four miles northeast of Dot, at elevations of 4,000 to 4,700 feet.

Claims: TN 2 to 20, 22, 24, 26, 28, 29, 31, 33, TN 1 and 2 Fractions, LD 1 Fraction.

Access: The property is south of the road along Skuhun Creek, about 6 miles from the Merritt–Spences Bridge highway turnoff.

Owner: CROYDON MINES LTD., 610, 690 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: Six hundred soil samples were taken at 200-foot stations on lines spaced 400 feet apart. Several anomalous zones were delineated.

Reference: Assessment Report No. 2058.

Description: The west half of the property is underlain by quartz diorite of the Hybrid phase of the Guichon Creek batholith, the east half by the Chataway granodiorite phase.

TROJAN (No. 800, Fig. 35)

By David Smith

Location: Lat. 50° 32′–33′ Long. 120° 59′–121° 00′ (92I/10W)
About 5,300 feet on the south slope of Bose Hill.

Claims: Crown grants: BILL 1 to 16, AJ 1 to 8; claims: CN 1 to 8, MARS 1 to 5, VENUS 1 and 2, SB 1 to 3, LIL 4 to 7, MAX 1 and 2; fractions: VENUS, SB, OPAL, two TOM; total of 24 Crown grants and 29 mineral claims.

Access: A branch road from the highway one-half mile west of the Bethlehem concentrator is followed 3 miles northward to the property.

Owner: South Seas Mining Limited.

Operator: PÉCHINEY DEVELOPMENT LIMITED, 617, 744 West Hastings Street, Vancouver 1.

Work Done: The underground workings were dewatered. The BILL claims at 100 scale, the other claims at 500 scale, and the underground workings at 40 scale were geologically mapped. Five bulldozer trenches, total length 1,000 feet, were dug; five open cuts, total length 500 feet, were excavated. A ground magnetometer survey covered the property and 345 soil samples were taken in the BILL, AJ, and CN areas. Twelve diamond-drill holes totalled 5,000 feet. A standby pump was installed at the bottom of the service shaft and new switchgear was installed for both pumps.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 177.

Description: Chalcopyrite with lesser bornite and some native copper occur in a pipe of brecciated, altered, Guichon granodiorite.

VALLEY (No. 864, Fig. 35)

By David Smith

Location: Lat. 50° 21′ Long. 121° 03′ (92I/6E)
The VALLEY claims lie on the south slope of Highland Valley immediately west of Quiltanton (Divide) Lake, at 4,000 to 5,000 feet elevation.

Claims: There are 322 claims, including the DF and DH groups.

Access: On the Highland Valley road, 25 miles southeast of Ashcroft.

Owner: Valley Copper Mines Limited.

Operator: COMINCO LTD., 1199 West Pender Street, Vancouver 1; George Fox, property superintendent; J. M. Allen, geologist.

Metal: Copper.

WORK DONE:

In 1969 an underground exploration programme was carried out. A decline A was driven southerly on an approximate grade of minus 20 per cent for a distance of 1,189 feet. A station was cut and two declines B and C are being driven northerly, diverging at an angle of 60 degrees back under decline A at the same slope; B decline reached 960 feet and C decline 960 feet at year-end. The size of these declines is 12 feet by 14 feet to permit use of adequate positive ventilation (ducting), use of scoop trams and mobile drill jumbo, and to obtain a bulk sample.

A sampling plant, primary crusher, and secondary crusher have been set up and operated continuously during the year.

Clearing of surface vegetation over an area of 1,600 acres commenced in the latter part of 1969.

Surface diamond drilling by contractor, 40 holes totalling 38,000 feet; underground diamond drilling by contractor, 10 holes totalling 9,033 feet. Nine percussion holes were drilled totalling 1,800 feet. The company has announced that the orebody to a depth of 500 feet contains 600,000 tons per vertical foot, grading 0.46 per cent copper.

In 1969 a geochemical survey was carried out.

Power is supplied by diesel-driven generators having a total capacity of 840 kva. Three hundred horsepower is used for mine ventilating fans and 100 horsepower for mine pumps. A small crushing plant requires 45 horsepower.

VERA, DIA (No. 861, Fig. 35)

LOCATION: Lat. 50° 32′–33′ Long. 121° 05′–07′ (92I/11E)
At elevation 4,000 feet, 6 miles northwest of Lornex.

CLAIMS: VERA 1 to 23; DIA 1 to 5, 7 to 10; TE Fraction 1 and 2.

ACCESS: The property adjoins the Highland Valley highway in the south about 20 miles from Ashcroft.

OWNER: Kel-Glen Mines Ltd.

OPERATOR: LORNEX MINING CORPORATION LTD., P.O. Box 430, Ashcroft.

METALS: Copper, molybdenum.

WORK DONE: Six diamond-drill holes totalling 2,497 feet were drilled to test anomalies outlined by 15 line-miles of induced polarization and electromagnetic surveys.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 186; Assessment Reports Nos. 1676, 1710, and 2218.

VW, AX, LATE (No. 808, Fig. 35)

LOCATION: Lat. 50° 35′ Long. 121° 03′ (92I/11E)
Two miles northwest of Forge Mountain.

CLAIMS: AX 1 to 18, LATE 1 and 2, VW 1 to 20.

OWNERS: J. McPHEE and M. KANGRO.

WORK DONE: Grid-lines at 400-foot intervals were cut from a base-line which trends 210 degrees and geological mapping at 400 scale carried out along the lines. Magnetometer readings were taken every 200 feet.

REFERENCE: Assessment Report No. 2092.

DESCRIPTION: The claims are underlain by Kamloops Group. Vesicular and amygdaloidal basalt predominates. Most of the outcrops are along the eastern edge of the AX claims. Some of the flows are strongly foliated; dips are variable but often steep.

WAY (No. 830, Fig. 35)

Location: Lat. 50° 37.5′–41′ Long. 120° 45′–51′ (92I/10W) Two miles northeast of Tunkwa Lake, 5 miles south of Savona.

Claims: WAY 1 to 152, 155 to 160, 167 to 172, 175, 176, 185 to 192, 207 to 218, 227 to 260, totalling 220 claims.

Access: The road past Tunkwa Lake toward Savona passes through the property.

Owner: SPARTAN EXPLORATIONS LTD., 303, 1035 West Pender Street, Vancouver 1.

Work Done: Lines at 800-foot intervals were cut and traversed to compile a geologic map; magnetometer readings were taken at 100-foot intervals along the lines.

Reference: Assessment Report No. 2159.

Description: The eastern portion of the property has scattered outcrops of Nicola volcanic rocks, hornblende porphyry, andesite, and volcanic breccia. These are overlain by Tertiary boulder to pebble agglomerates. On the western part of the property a 1,500-foot section of Tertiary Kamloops volcanic rocks crops out. The basal 200-foot layer of dark grey to black basalt is overlain by 100 feet of porphyritic trachyte and thick beds of agglomerate. No mineralization, alteration, or intrusive rocks were found.

WJ (No. 862, Fig. 35)

Location: Lat. 50° 30′–32′ Long. 120° 56′–57′ (92I/10W) At elevation 5,000 feet.

Claims: WJ 1 to 58.

Access: One-half mile west of the Bethlehem concentrator a secondary road may be followed for about 1½ miles from the highway; thence a branch road leads about 2 miles past Bose Lake to the property.

Owners: J. S. Christie and K. W. Livingstone.

Operator: LAURA MINES LIMITED, 1770, 777 Hornby Street, Vancouver 1.

Metal: Copper.

Work Done: Fifty-eight miles of line was cut with east-west lines at 400-foot intervals along a 16,000-foot north-south base-line. Two 100-foot stations were marked. On the grid, 1,567 soil samples were taken, 58 line-miles of magnetometer survey were run, and 22.8 miles of reconnaissance and 3.8 miles of detailed induced polarization survey were conducted. A geological map was prepared at scale 1 inch equals 400 feet. Four trenches, with total length 500 feet, were bulldozed. Nine diamond-drill holes have total length of 2,800 feet.

References: *Minister of Mines, B.C.*, Ann. Repts., 1958, p. 22; 1967, p. 156; Assessment Reports Nos. 2187 and 2188.

Description: Exposure on the property is poor but it is apparently underlain by rocks of the Guichon phase of the Guichon Creek batholith. In places, these are cut by finer dyke rocks which may be correlated with the Witches Brook phase. Two anomalous zones were outlined, the southern is 400 feet wide and at least 2,500 feet long in a northerly direction. It is associated with known malachite, chalcopyrite, bornite mineralization in the old BX trenches. The northwestern zone has no known mineralization associated with it. One thousand nine hundred feet of diamond drilling on the south anomaly revealed mineralization in shear zones ranging from 0.5 to 2.5 per cent copper across widths of 4 to 23 feet.

X-Y (No. 863, Fig. 35)

Location: Lat. 50° 30.5′ Long. 120° 52.2′ (92I/10W, 7W)
Four miles east of Bethlehem mine.

Claims: X-Y 1 to 28.

Access: By highway from Ashcroft to Quiltanton Lake, thence dirt road; a total distance about 35 miles.

Owner: COMET KRAIN MINING CORP. LTD., 409, 408 Granville Street, Vancouver 2.

Work Done: Geochemical survey, 370 soil samples in 14 line-miles analysed for copper; 1,000 scale topographic map made; airborne magnetometer survey.

Reference: Assessment Report No. 2024.

NICOLA MINING DIVISION

HIGHLAND VALLEY AREA

ABERDEEN (No. 815, Fig. 35)

Location: Lat. 50° 18′ Long. 120° 51.4′ (92I/7W)
Twenty miles northwest of Merritt at elevation 2,100 feet.

Claims: ABERDEEN (Lot 960), CROWN 1 to 38, a total of 39 claims.

Access: The road to Chataway Lodge, which branches off from the paved road which leads from the Merritt–Spences Bridge highway to Craigmont, leads to the property.

Owner: TORWEST RESOURCES (1962) LTD., 702, 850 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: The property was covered by 36.44 line-miles of electromagnetic and magnetometer survey with 100-foot stations.

References: Assessment Reports Nos. 1826 and 1923.

Description: Chalcocite occurs in a granodiorite phase of the Guichon Creek batholith.

SUNSHINE, LO, LEE (No. 872, Fig. 35)

Location: Lat. 50° 16.8′–19.7′ Long. 120° 43.6′–49.2′ (92I/7E, 7W)
At headwaters of Tolman Creek, 4 miles south-southeast of Mamit Lake.

Claims: SUNSHINE 1 to 16; LO 6, 7, 9 to 16; LEE 1 to 40; CAIN 1 and 2; PATTI 1 to 10; OS 1 and 2; SS 1 and 2; RS 1 and 2; ELVA 1 to 3; WET 1 and 2; TRISH 1 to 8; FRIDAY 1 to 13; SATURDAY 1 to 17; VAL 1 to 12.

Access: By road, 16 miles from Merritt.

Owner: HIGHLAND LODE MINES LIMITED, 814, 510 West Hastings Street, Vancouver 2.

Metals: Zinc, lead, copper, silver.

Work Done: Geological mapping.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 196, 197.

Description: Galena, sphalerite, chalcopyrite, pyrite, and pyrrhotite mineralization in breccia zone in Nicola volcanics.

LEE (No. 807, Fig. 35)

LOCATION: Lat. 50° 21′–22′ Long. 120° 49′–49.5′ (92I/7W)
At 4,000 feet, 15 miles north of Lower Nicola, at southwest end of Mamit Lake.

CLAIMS: LEE 1 to 6; BLUEBERRY 1 to 8; BUCK 1 to 4; F & W 1 to 4; ED 1 to 5; DUDE 1 to 4, 6.

ACCESS: By road from Lower Nicola on the Merritt–Spences Bridge highway.

OWNERS: R. McBean and MAMIT LAKE MINING LTD., 303, 550 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: Six line-miles of induced polarization, magnetometer, and soil sample surveys were made over the BLUEBERRY 1 to 4, LEE 1 to 5, and BUCK 1 to 4 claims. Magnetometer and geochemical surveys were also run in order to test the mineral potential of claims ED 2, ED 5, and DUDE 6.

REFERENCES: Assessment Reports Nos. 1851A, 1851B, and 1895.

DESCRIPTION: Chalcopyrite, malachite, and pyrite occur in hydrothermal veins in gabbro(?).

MERRITT

OK, DONNY, AL, MAD ARAB (No. 362, Fig. 34)

LOCATION: Lat. 50° 20.9′–22.9′ Long. 120° 42.4′–45.7′ (92I/7E, 7W)
At elevations of 4,000 to 5,000 feet on the west slope of Mount Guichon, at the head of Rey and Phelps Creeks, east of Mamit Lake.

CLAIMS: DONNY 1 to 22, 39, 40; BOB 1 to 10; MAD ARAB 1 to 10; OK 1, 3, 5, 7, 9; AL 2, 4, 6, 8, 10.

ACCESS: By road north from Lower Nicola.

OWNER: CAMBRIDGE MINES, LIMITED, 420 Howe Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geology of DONNY 11 to 14 and MAD ARAB 1 to 10 claims mapped on scale 1 inch equals 400 feet, one pit dug by hand 5 feet deep, one hole 256 feet long diamond drilled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 196; Assessment Report No. 1911.

DESCRIPTION: Chalcopyrite in shears in Nicola volcanics.

ALAMEADA (No. 340, Fig. 34)

LOCATION: Lat. 50° 17.4′ Long. 120° 41.6′ (92I/7E)
On southwest side of Swakum Mountain about 12 miles north-northeast of Merritt.

CLAIMS: ALAMEADA 6, OLD ALAMEADA 2 to 7 (Lots 4501, 4508, 4505, 4504, and 4503), grouped as Mineral Lease M-24 and the OLD COMPLEX Nos. 2 and 3 (Lots 4893 and 4894) grouped as Mineral Lease M-23.

ACCESS: By road from Nicola.

OPERATOR: ZULCO EXPLORATIONS LTD., 450, 890 West Pender Street, Vancouver 1.

WORK DONE: Induced polarization survey.

REFERENCES: *Geol. Surv., Canada,* Mem. 249, p. 62 (Alameda), *Minister of Mines B.C.,* Ann. Rept., 1959, p. 36; Assessment Report No. 1795.

REB (No. 224, Fig. 34)

Location: Lat. 50° 18′ Long. 120° 37′ (92I/7E)
At elevation 4,500 feet 1½ miles east of Swakum Mountain.

Claims: REB 1 to 40.

Access: Nine miles by road from Nicola.

Owner: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Two hundred and forty-four soil and silt samples were collected for a reconnaissance geochemical survey.

COKE (No. 299, Fig. 34)

Location: Lat. 50° 16′ Long. 120° 38′ (92I/7E)
Just west of Clapperton Creek, 2½ miles southeast of Swakum Mountain, 15 miles northeast of Merritt.

Claims: COKE 1 to 30, part of MAB LAKE group.

Access: By road, 9 miles north from Nicola.

Owner: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metal: Copper.

Work Done: Induced polarization and resistivity surveys on 7.4 line-miles of grid, geological survey, geochemical soil survey using 647 samples.

Reference: Assessment Report No. 2105.

FIR (No. 296, Fig. 34)

Location: Lat. 50° 11′–14′ Long. 120° 44′–48′ (92I/2E, 2W)
Between headwaters of Hector and Jesse Creeks, 8 miles due north of Merritt.

Claims: Ninety FIR claims.

Access: By logging-roads east from Guichon Creek.

Owner: FORT RELIANCE MINERALS LIMITED, 915, 25 Adelaide Street East, Toronto 1, Ont.

Work Done: Magnetometer and geochemcial surveys.

Reference: Assessment Report No. 2101.

CRAIGMONT MINE (No. 345, Fig. 34)

By David Smith

Location: Lat. 50° 12.5′ Long. 120° 55.7′ (92I/2W)
Between 3,800 and 4,200 feet elevation at the forks of Birkett Creek, 8 miles north of Merritt.

Claims: The Craigmont orebodies are on the MERRELL 7 and 8 and McLEOD 5 and 6 claims. The company holds 106 mineral claims and fractions, 32 of which comprise 10 mineral leases.

Access: By road north from Highway No. 8 at Lower Nicola.

Owner: CRAIGMONT MINES LIMITED, 700, 1030 West Georgia Street, Vancouver 5; mine address, Box 3000, Merritt; A. J. Petrina, mine manager; R. Cockayne, mine superintendent.

Metal: Copper (*see* Table 12 for production).

Work Done:

Underground work is summarized as follows: Lateral development, 20,789 feet; raising, 2,387 feet; borehole raises, 1,667 feet; diamond drilling continued underground.

Mining and milling operations were continuous in 1969. Production was from stockpiled ore from the open pit and from underground. During the year, 710,547 tons was reclaimed from the open-pit stockpiles and 1,120,815 tons of underground ore was mined. Mill feed, including ore from the stockpile, totalled 1,810,855 tons, which produced 71,710 tons of concentrate. Copper concentrates are loaded at Coyle Siding and hauled by Canadian Pacific Railway to Vancouver for shipment to Japan.

In 1969 an addition to the mill building was completed to house a magnetite recovery circuit. It is expected that shipments of magnetite concentrate will commence in 1970.

An iron plant was installed in the mill. It consists of three magnetic separators requiring 5 horsepower each, two magnetic separators requiring 1 horsepower each, six pumps driven by two 5-horsepower, one 50-horsepower, one 10-horsepower, one 3-horsepower, and one 1-horsepower motors respectively, one vacuum pump driven by a 150-horsepower motor, and a filter driven by a 5-horsepower motor.

The electrics for the back-fill system in the mill were removed. Two 112.5-kva. transformers were installed underground, one in No. 35 substation on 3500 level and the other in No. 41 substation on 3339 wing. An electronic level monitor was installed for ore passes Nos. 761, 842, and 846. It controls the flow of ore automatically in the ore passes. Automatic track limit switches operating in conjunction with the block light system were installed on 2400 haulage way. A block light system was installed on the ramps between 3246 and 3432 levels to control vehicle traffic. A new substation No. 42 consisting of a 225-kva. 4,160/550-volt transformer was installed on 3500 level to supply a raise boring machine.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1960, pp. 35–40; 1961, pp. 31–37; 1968, pp. 197, 198.

ETTA, PEG, JUGS (No. 325, Fig. 34)

LOCATION: Lat. 50° 10.8′–13.6′ Long. 120° 52.1′–57.2′ (92I/2W) On hillside north and northwest of Lower Nicola.

CLAIMS: ETTA 1 to 8; PEG 1 to 11; JUGS 1 to 16; PAQUET 1 to 8; and others totalling 96 claims.

ACCESS: By road, 3 miles from Lower Nicola.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

WORK DONE: Eight holes totalling 2,754 feet diamond drilled from surface.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 195; Assessment Report No. 1777.

DESCRIPTION: Chalcopyrite and pyrite in Nicola Group and Kingsvale Group rocks.

MARB (No. 292, Fig. 34)

LOCATION: Lat. 50° 12′–14′ Long. 120° 57′–121° 01′ (92I/2W, 3E) On the height of land 2 miles west of Craigmont mine and 6 miles northwest of Lower Nicola.

CLAIMS: MARB 1 to 18, 21 to 32, 34 to 44, 47, 48, 51 to 64.

ACCESS: By road, 18 miles from Merritt.

OWNER: TORWEST RESOURCES (1962) LTD., 702, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

Work Done: Thirty-four line-miles covered by Ronka 16 electromagnetic, ground magnetometer, and geochemical surveys; two trenches totalling 200 feet long bulldozed; 5 miles of road constructed.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 199; Assessment Reports Nos. 1923 and 2096.

TOM (No. 226, Fig. 34)

Location: Lat. 50° 10.9′ Long. 120° 28.3′ (92I/1W)

At 4,800 feet elevation on the south slope of Promontory Hills about 1 mile east of southeast corner of Indian Reserve No. 9.

Claims: TOM B-1 to B-8 and TOM 6 Fraction and TOM 11 Fraction (formerly located as the Hank).

Access: By 4 miles of forestry road from Highway No. 8.

Owner: PEEL RESOURCES LIMITED, 501, 535 Thurlow Street, Vancouver 5.

Metal: Copper.

Work Done: Surface workings mapped, soil sampling for geochemical survey, two holes totalling 1,080 feet diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 54.

PRIDE, SID, RAM (No. 310, Fig. 34)

Location: Lat. 50° 09′–10.5′ Long. 120° 53′–58.5′ (92I/2W)

On the lower southern slopes of Promotory Hills just north of Highway No. 8 to the north and west of Lower Nicola.

Claims: PRIDE 1 to 28, 30 to 34, 43 and 44; SID 1 to 59; RAM 1 to 8; MAR Fraction.

Access: By roads from Lower Nicola.

Owner: LONDON PRIDE SILVER MINES LTD., 913 1030 West Georgia Street, Vancouver 5.

Work Done: Topographic, geological, geochemical, ground magnetometer, and induced polarization surveys.

Reference: Assessment Report No. 2128.

COPPER CANYON, EAGLE, SOS (No. 314, Fig. 34)

Location: Lat. 50° 10′ Long. 121° 11′ (92I/3E)

Headwaters of Nuaitch Creek, 7½ miles west-northwest of Canford.

Claims: COPPER CANYON 1 to 8; EAGLE 17; SOS 1 to 40; TT 1 to 5 and 1 and 2 Fractions.

Access: By road up Nuaitch Creek through Indian Reserve No. 10 from Highway No. 8.

Owner: NEW CINCH URANIUM LTD., 25 Adelaide Street West, Toronto, Ont.

Metal: Copper.

Work Done: Geochemical survey and ground magnetometer survey.

References: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 155(*see* Copper Canyon); Assessment Reports Nos. 2122 and 2123.

BOY, CHATKO (No. 302, Fig. 34)

Location: Lat. 50° 03.5′–05.5′ Long. 120° 42′–45.5′ (92I/2E, 2W)

On Godey Creek, 3 miles southeast of Merritt.

Claims: BOY 1 to 55, CHATKO 25 to 28.

Access: Logging-roads from Highway No. 5 about 2 miles south of Merritt.

Owners: T. Heard and Iiyama Mines Ltd.

Operator: IIYAMA MINES LTD., 2503, 1177 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Geological mapping, a magnetometer survey covering 44.4 line-miles of grid, and a geochemical soil survey involving 1,090 samples were carried out under the direction of H. Wober.

Reference: Assessment Report No. 2112.

Description: Chalcopyrite with pyrite and magnetite in skarn zones in fractured rocks of the Nicola Group.

CW, NW (No. 240, Fig. 34)

Location: Lat. 50° 03′–08′ Long. 120° 25.2′–29.2′ (92I/1W)
Seven miles southeast of Quilchena at 3,000 to 4,000 feet elevation.

Claims: CW 1 to 198 and NW 1 to 30.

Access: By road from Merritt.

Operator: CRAIGMONT MINES LIMITED, P.O. Box 3000, Merritt.

Metal: Copper.

Work Done: Under the direction of R. J. Young, approximately 200 square miles was mapped geologically; 15 line-miles of induced polarization survey was run; 1,250 soil samples and 85 stream-sediment samples were collected for analysis.

MINT (No. 227, Fig. 34)

Location: Lat. 50° 01.8′ Long. 120° 32′ (92I/2E)
Adjoins Indian Reserve No. 7 to south on Quilchena Creek about 8 miles south of Quilchena.

Claims: MINT 1 to 100.

Access: By Highway No. 5 for 5 miles, south from Merritt, thence 5 miles east on Douglas Lake Cattle Co. road.

Owner: H. D. Merrell, Merritt.

Operator: BETHLEHEM COPPER CORPORATION LTD., Box 520, Ashcroft.

Metal: Copper.

Work Done: R. J. Nethery mapped the geology, supervised collection of 25 grab samples, and supervised the drilling of 10 percussion-drill holes with a total footage of 2,060 feet.

Description: Disseminated pyrite, chalcopyrite, and molybdenite in Nicola volcanic and other intrusive rocks.

CM (No. 225, Fig. 34)

Location: Lat. 49° 51.4′ Long. 120° 35′ (92H/15E)
On Quilchena Creek, 5 miles north of Alleyne Lake.

Claims: CM 1 to 13.

Access: By 16 to 18 miles of road from Merritt.

Owner: VANANDA EXPLORATIONS LTD., 1120 One Bentall Centre, 505 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: Perimeter survey of claims.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 173.

STUMP LAKE

KING WILLIAM, ENTERPRISE, TUBAL CAIN (No. 366, Fig. 34)

Location: Lat. 50° 17.9′–21.5′ Long. 120° 20.9′–24.2′ (92I/8W)
Adjoining the southeast shore of Stump Lake.

Claims: KING WILLIAM (Lot 592), ENTERPRISE (Lot 651), TUBAL CAIN (Lot 586) plus 53 other Crown-granted and 61 located claims.

Access: By the Kamloops to Merritt highway.

Operator: COPPER HILL MINING AND EXPLORATION LTD., Box 506, Grand Forks.

Metals: Gold, silver, lead, zinc.

Work Done: Underground and surface sampling.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 157 (*see* Planet, Stump Mines Ltd.).

ACE (No. 317, Fig. 34)

Location: Lat. 50° 19′ Long. 120° 20′ (92I/8W)
Adjoins the Mary Reynolds Creek, 1 mile northwest of Peterhope Lake and 3¼ miles southeast of south end of Stump Lake.

Claims: ACE 1 to 9 and fraction.

Access: By road from Highway No. 5 from south end of Stump Lake.

Owner: AARN EXPLORATIONS & DEVELOPMENT CO. LTD., 280, 180 Seymour Street, Kamloops.

Metals: Gold, silver, zinc.

Work Done: Seven trenches totalling 250 feet bulldozed and 2 miles of road built.

Description: Sulphides in quartz-carbonate veins in Nicola volcanic rocks.

DL (No. 270, Fig. 34)

Location: Lat. 50° 21′ Long. 120° 12′ (92I/8E)
About 4,000 feet elevation, 2 miles southwest of Dardanelles Lake, 23 miles south of Kamloops.

Claims: DL 1 to 16, 18.

Access: By logging-road from Highway No. 5.

Owner: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

Work Done: N. B. Vollo supervised geological mapping, geochemical soil surveying, magnetometer and electromagnetic surveying over a 9-mile grid on the property.

Reference: Assessment Report No. 1995.

DOUGLAS LAKE

RANCHER, PEPSI, OUT (No. 269, Fig. 34)

Location: Lat. 50° 07′ Long. 120° 23′ (92I/1W)
On west slope of Mount Hamilton, 6 miles southeast of Quilchena and 6 miles west of Douglas Lake.

Claims: RANCHER 1 to 6; PEPSI 1 to 41; OUT 1, 2, 13 to 20, 25, 27, 29, 31; RAISE 1 to 8.

Access: Via Pennask Lake road 7 miles south from Highway No. 5 at Quilchena and thence east on a side road for 3 miles to the property.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

WORK DONE: The geology of the claims was mapped, 13.65 line-miles of induced polarization and ground magnetometer surveys was run, 300 soil samples were collected for a geochemical survey, and six holes totalling 1,800 feet were percussion drilled.

REFERENCE: Assessment Report No. 1972.

ASPEN GROVE

DOTE (No. 298, Fig. 34)

LOCATION: Lat. 49° 57.7′ Long. 120° 36′ (92H/15E)
Aspen Grove, straddling Highway No. 5 approximately 1 mile north of Kidd Lake, about 16 miles south of Merritt.

CLAIMS: DOTE 1 to 8, 11 to 18.

ACCESS: By Highway No. 5, 16 miles from Merritt.

OWNER: DAWOOD MINES LIMITED, 410, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: A geochemical survey was run over 12.2 miles of grid lines cut on the property.

REFERENCE: Assessment Report No. 1910.

BAT, TAB (No. 298, Fig. 34)

LOCATION: Lat. 49° 58.2′ Long. 120° 36.2′ (92H/15E)
Astride Highway No. 5, 3 miles north of Kidd Lake.

CLAIMS: BAT 1 to 10, TAB 1 to 5.

ACCESS: By Highway No. 5, 6 miles north of Aspen Grove.

OPERATOR: NORRANCO MINING & REFINING CO. LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

METAL: Copper.

WORK DONE: One hole 200 feet long diamond drilled on surface.

HALO (No. 297, Fig. 34)

LOCATION: Lat. 49° 56.4′–58.2′ Long. 120° 33.3′–36.1′ (92H/15E)
One-half to 2 miles east of Highway No. 5, 3 miles north of Kidd Lake.

CLAIMS: Fifty-one claims comprising the HALO, TOUCH, LOU, MAGNUS, RAM.

ACCESS: Via Highway No. 5, 6 miles north from Aspen Grove.

OPERATOR: NORRANCO MINING & REFINING CO LTD., 736 Eighth Avenue S.W., Calgary 2, Alta.

METALS: Copper, silver.

WORK DONE: One hole 200 feet long diamond drilled on surface.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 202.

HH, MIX (No. 338, Fig. 34)

LOCATION: Lat. 49° 54.8′ Long. 120° 36.2′ (92H/15E)
One mile southeast of Kidd Lake, about 3 miles southeast of Aspen Grove Post Office.

CLAIMS: HH, MIX, 3 WAY.

ACCESS: By road from Aspen Grove.

Owner: ASPEN GROVE MINES LTD., 826, 510 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Ground magnetometer survey.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 202; Assessment Report No. 1850.

TOE, BOOT, MALACHITE (No. 249, Fig. 34)

Location: Lat. 49° 54′–58′ Long. 120° 20′–29′ (92H/16W)
Between Paradise and Tommy Lakes, at 4,000 to 5,000 feet elevation.

Claims: TOE, BOOT, MALACHITE, CHALCOCITE, totalling 208 claims.

Access: By road from Merritt, 20 to 25 miles.

Owner: CONSOLIDATED SKEENA MINES LTD., 528, 789 West Pender Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: Fourteen miles of line cut for induced polarization survey, two pits dug 9 feet deep by hand, 9,000 square feet stripped to bedrock, and 1½ miles of road built.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 174; 1968, p. 201; Assessment Reports Nos. 1718 and 1953.

Description: Disseminated chalcopyrite, bornite, and molybdenite in Nicola volcanics near Pennask batholith.

AMALG (No. 210, Fig. 34)

Location: Lat. 49° 50′–55′ Long. 120° 37′ (92H/15E)
Two miles southeast of Aspen Grove.

Claims: AMALG 1 to 44.

Owner: F. R. BURTON, 44 Kings Street West, Toronto, Ont.

Work Done: Electromagnetic and magnetometer surveys of two groups of claims, one about 1 mile square immediately east of Highway No. 5, 9 miles north of Allison Lake; the other about three-quarters of a mile square immediately southeast of Miner Lake, under the direction of W. M. Sirola.

Reference: Assessment Report No. 2028.

COQUIHALLA LAKE

MAG (No. 326, Fig. 34)

Location: Lat. 49° 40.6′ Long. 121° 00.9′ (92H/11E)
West side of Coldwater River, 3 miles north of Coquihalla Lake.

Claims: MAG 1 to 4, 1 Fraction.

Operator: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Silver, copper, lead, zinc, gold.

Work Done: The geology of the claims was mapped, 2.3 line-miles of induced polarization survey was run, a geochemical soil survey was made over all the claims, six trenches totalling three-quarters of a mile in length were bulldozed, and six holes totalling 3,008 feet were diamond drilled.

Description: Mineralized fractures and veins in intrusive breccia in gneissic granodiorite.

BRENDA LAKE

KIP (SLIM) (No. 280, Fig. 34)

LOCATION: Lat. 49° 54′ Long. 120° 03′ (92H/16E)
Half a mile northwest of Brenda Lake.
CLAIMS: KIP 1 to 4.
ACCESS: By road from Peachland, 24 miles.
OWNER: LARGO MINES LTD., 1110, 505 Burrard Street, Vancouver 1.
METAL: Copper.
WORK DONE: Geochemical survey.
REFERENCE: Assessment Report No. 2034.

KOM (No. 336, Fig. 34)

LOCATION: Lat. 49° 56.4′ Long. 120° 03′ (92H/16E)
About 4 miles southeast of the south end of Pennask Lake and 4 miles north of Brenda Lake.
CLAIMS: KOM 1 to 16.
ACCESS: By gravel road, 25 miles from Peachland.
OWNER: LARGO MINES LTD., 1110, 505 Burrard Street, Vancouver 1.
METAL: Copper.
WORK DONE: Geochemical survey.
REFERENCE: Assessment Report No. 1946.

SIMILKAMEEN MINING DIVISION

ALLISON LAKE

PINE, REG, DY (No. 311, Fig. 34)

LOCATION: Lat. 49° 40.3′–42.7′ Long. 120° 33.7′–36′ (92H/10E)
Along east side of Allison Lake, 16 miles north-northeast of Princeton.
CLAIMS: PINE 1 to 35, REG 1 to 16, DY 1 to 8.
ACCESS: By Highway No. 5, 18 miles from Princeton.
OWNER: BLUE GULCH EXPLORATIONS LTD., 800, 789 West Pender Street, Vancouver 1.
METAL: Copper.
WORK DONE: One thousand soil samples collected for geochemical survey; six trenches totalling 1,220 feet bulldozed in overburden; eight pits 3 feet deep dug in overburden; four trenches totalling 800 feet dug in bedrock; 1 mile of road constructed; and three holes totalling 2,000 feet diamond drilled.
DESCRIPTION: Disseminated pyrite and chalcopyrite in monzonite near contacts with Nicola Group volcanic rocks.

SUMMERS CREEK

ESTHER, LEM (No. 312, Fig. 34)

LOCATION: Lat. 49° 44.5′–46.4′ Long. 120° 30′–31.1′ (92H/10E, 15E)
At south end of Missezula Lake, 21 miles due north of Princeton.
CLAIMS: ESTHER 1 to 31, LEM 1 to 8.
ACCESS: By road from Princeton via Summers Creek.

OPERATOR: DELKIRK MINING LTD., 403, 1200 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geological mapping, three trenches totalling 90 feet bulldozed in overburden.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1963, p. 57 (*see* Shamrock); *Geol. Surv., Canada*, Mem. 243, 1947, p. 92 (*see* Shamrock group).

DESCRIPTION: Disseminated sulphides in Nicola Group volcanic flow breccias.

OD, OB, OC (No. 320, Fig. 34)

LOCATION: Lat. 49° 44.8′–47.7′ Long. 120° 26.3′–30′ (92H/9W, 16W)
East of and adjacent to south end of Missezula Lake astride Dillard Creek.

CLAIMS: OD 1 to 30, OB 1 to 40, OC 1 to 40.

ACCESS: By road from Princeton.

OWNER: PRIMER GROUP MINERALS LTD., 201, 1836 West Fifth Avenue, Vancouver 9.

METALS: Copper, gold, silver.

WORK DONE: Geological mapping of all claims; geochemical survey involving 43 line-miles of grid and 1,200 soil samples; four trenches totalling 1,200 feet excavated; 10 holes totalling 5,800 feet diamond drilled; 22 holes totalling 2,182 feet percussion drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 204.

DESCRIPTION: Fracture fillings and fine disseminations in fractured volcanic flows near granodioritic intrusives.

ROADBLOCK (No. 234, Fig. 34)

LOCATION: Lat. 49° 43.2′ Long. 120° 30.4′ (92H/10E)
On Summers Creek, 3 miles south of Missezula Lake.

CLAIMS: ROADBLOCK 1 to 16.

ACCESS: By road, 20 miles north from Princeton.

OWNER: E. O. CHISHOLM, 821, 602 West Hastings Street, Vancouver 2.

METAL: Copper.

WORK DONE: Under the direction of T. L. Sadlier-Brown, 300 soil samples were collected for a geochemical survey covering all claims.

REFERENCE: Assessment Report No. 1928.

DESCRIPTION: Chalcopyrite disseminated and in veins and stringers in greenstone is accompanied by chloritization.

AXE, BUD, BOL (No. 308, Fig. 34)

LOCATION: Lat. 49° 38′–41.3′ Long. 120° 30′–33′ (92H/10E)
Astride and west of Summers Creek 14 miles due north of Princeton.

CLAIMS: AXE 1 to 60, 65 to 70, 75 to 86, 1A to 5A; BUD 1 to 11; BOL 1 to 3, 20 to 27.

ACCESS: By road, 17 miles from Princeton.

OPERATOR: AMAX EXPLORATION, INC., 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

WORK DONE: Geological, induced polarization, and geochemical surveys were done on the AXE and BUD claims; two trenches totalling 600 feet in length in overburden and seven trenches totalling 2,000 feet in length in bedrock were bulldozed; and six holes totalling 4,000 feet were diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 203.

DESCRIPTION: Chalcopyrite and molybdenite in altered Nicola Group rocks.

ELN (No. 337, Fig. 34)

LOCATION: Lat. 49° 36′ Long. 120° 28.6′ (92H/9W)
East of Summers Creek, 10 miles north of Princeton.

CLAIMS: ELN 1 to 4.

ACCESS: By road from Princeton.

OWNER: CANWEX EXPLORATIONS LTD., 1666 West Broadway, Vancouver 9.

METAL: Copper.

WORK DONE: Geochemical soil survey.

REFERENCES: Assessment Reports Nos. 1833 and 2300.

DOT (No. 233, Fig. 34)

LOCATION: Lat. 49° 34.3′ Long. 120° 31′ (92H/10E)
On hillside west of Summers Creek, 3 miles above the Allison Creek junction.

CLAIMS: DOT 51 to 93.

ACCESS: By road from Princeton.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

WORK DONE: Geology of all the claims was mapped by Cliff Pearson and 300 soil samples were collected for geochemical analysis.

HAYES CREEK

TOP, FIX (No. 328, Fig. 34)

LOCATION: Lat. 49° 46.5′ Long. 120° 20.8′ (92H/16W)
West of Siwash Creek about 1 mile north of the mouth of Teepee Creek, 23 miles north-northeast of Princeton.

CLAIMS: TOP, FIX, PET, TENT, AL, and others totalling 138 claims.

ACCESS: By road, 35 miles from Princeton, via Asprey Lake road to Bankier and thence by logging-road.

OPERATOR: QUALITY EXPLORATION CORPORATION, 510 West Hastings Street, Vancouver 2.

METALS: Silver, zinc, lead, copper.

WORK DONE: Ground magnetometer survey.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 203 (*see* Rosso No. 1, Top, Fix, Rex); Assessment Report No. 1800.

MABEL (No. 274, Fig. 34)

LOCATION: Lat. 49° 44′–47′ Long. 120° 18′–25′ (92H/16W)
On and west of Siwash Creek, 6 miles north of Bankier and 25 miles northeast of Princeton.

CLAIMS: KEN, ROSSO, DUKE, FIX, SN, BAN, PET, TOP, TENT, AL, totalling 174 claims.

ACCESS: Logging-road from Bankier.

OPERATOR: QUALITY EXPLORATION CORPORATION, 510 West Hastings Street, Vancouver 2.

Metals: Copper, lead, zinc, silver.

Work Done: Ground magnetometer and geological surveys.

References: Assessment Reports Nos. 1800 and 2005; *Geol. Surv., Canada,* Mem. 243, 1947, p. 107.

Description: Sulphides in quartz veins in shear zones in granodiorite.

EMPRESS (No. 232, Fig. 34)

Location: Lat. 49° 38.2′–40.9′ Long. 120° 03.5′–13.3′ (92H/9E)
Between 4,500 and 6,100 feet elevation at eastern headwaters of Empress Creek, 3 miles south of Mazama.

Claims: One hundred and ninety-eight EMPRESS claims and fractions.

Access: From Princeton by 30 miles of road.

Owner: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

Metal: Molybdenum.

Work Done: Topographic mapping; geological mapping; induced polarization, magnetic, and seismic surveying; 500 stream sediments and 5,000 soil samples collected for a geochemical survey; 48 trenches totalling 5,210 feet in length bulldozed in overburden; 39 trenches totalling 4,200 feet in length bulldozed in bedrock; 1.5 miles of road constructed; and three holes totalling 400 feet diamond drilled.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 203; Assessment Report No. 2036.

Description: Molybdenite associated with pyrite and magnetite occurs in fractures and quartz stringers and disseminated in quartz monzonite and alaskite. There is slight sericitic, chloritic, and kaolinitic alteration.

TULAMEEN RIVER

IRA, IR (No. 289, Fig. 34)

Location: Lat. 49° 37′ Long. 120° 55′ (92H/10W)
At 4,000 feet elevation on north fork of Skwum Creek, 8 miles northwest of Tulameen.

Claims: IRA 1 to 60, IR 1 to 50.

Access: About 20 miles by road from Tulameen.

Owner: COPPER RANGE EXPLORATION COMPANY, INC., 711, 850 West Hastings Street, Vancouver 1.

Metals: Copper, molybdenum.

Work Done: Five hundred feet of bulldozer trenching and 2 to 3 miles of road construction up east side of north fork of Skwum Creek.

Description: Sulphides in narrow quartz veins in porphyry.

CATHY (No. 283, Fig. 34)

Location: Lat. 49° 31′ Long. 120° 54′ (92H/10W)
On east bank of Tulameen River opposite mouth of Britton Creek, 6½ miles west-southwest of Tulameen.

Claims: CATHY 2, 3, 5 to 10, 12, 14 to 21; TINA 1 to 16; DOUG 1 to 4; Lots 1136 and 1137.

Owner: CONSTEEL EXPLORATIONS LTD., 601, 850 West Hastings Street, Vancouver 1.

WORK DONE: Line-cutting for geophysical survey, geological mapping, ground magnetometer survey.

REFERENCES: Assessment Reports Nos. 1945 (line-cutting) and 2274.

HG, IRON, DB, EV (No. 228, Fig. 34)

LOCATION: Lat. 49° 28.7′ Long. 120° 50′ (92H/7W)
On Lodestone Mountain, 5 miles west of Blakeburn.

CLAIMS: One hundred and twelve included under names HG, IRON, DB, EV, CB, and others.

ACCESS: By road, 14 miles from Coalmont.

OWNER: IMPERIAL METALS AND POWER LTD., 1512, 1177 West Hastings Street, Vancouver 1.

METAL: Iron.

WORK DONE: Topographic mapping, one-half mile of road construction, six percussion-drill holes totalling 1,280 feet.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 205.

DESCRIPTION: Magnetite in ultrabasic rocks.

ASH (No. 231, Fig. 34)

LOCATION: Lat. 49° 22.8′ Long. 120° 56.5′ (92H/7W)
At 5,500 feet elevation on northeast side of Tulameen River opposite mouth of Podunk Creek.

CLAIMS: ASH 1 to 14.

ACCESS: By road, 25 miles from Coalmont.

OWNER: COPPER RANGE EXPLORATION COMPANY, INC., 711, 850 West Hastings Street, Vancouver 1.

METALS: Molybdenum, copper.

WORK DONE: About 300 feet of bulldozer stripping and construction of 1 mile of road.

DESCRIPTION: Quartz veins in granodiorite.

GRANITE SCHEELITE (No. 318, Fig. 34)

LOCATION: Lat. 49° 20′ Long. 120° 53′ (92H/7W)
On west side of Granite Mountain, 18 miles southwest of Princeton.

CLAIMS: GRANITE SCHEELITE 1 to 10.

ACCESS: By road, 31 miles from Princeton.

OPERATOR: SILVER TIP EXPLORATIONS LTD., P.O. Box 697, Princeton.

METALS: Gold, silver, copper, zinc, tungsten.

WORK DONE: One adit advanced 150 feet; 10 miles of road reconstructed. A milling test was made on 130 tons of ore.

PRINCETON

TUL (No. 230, Fig. 34)

LOCATION: Lat. 49° 27′–30′ Long. 120° 30′–35.7′ (92H/7E)
Between 2,500 and 3,500 feet elevation, on hillside adjoining Princeton to the northwest.

CLAIMS: One hundred and sixty-four TUL claims and fractions.

ACCESS: By road from Princeton.

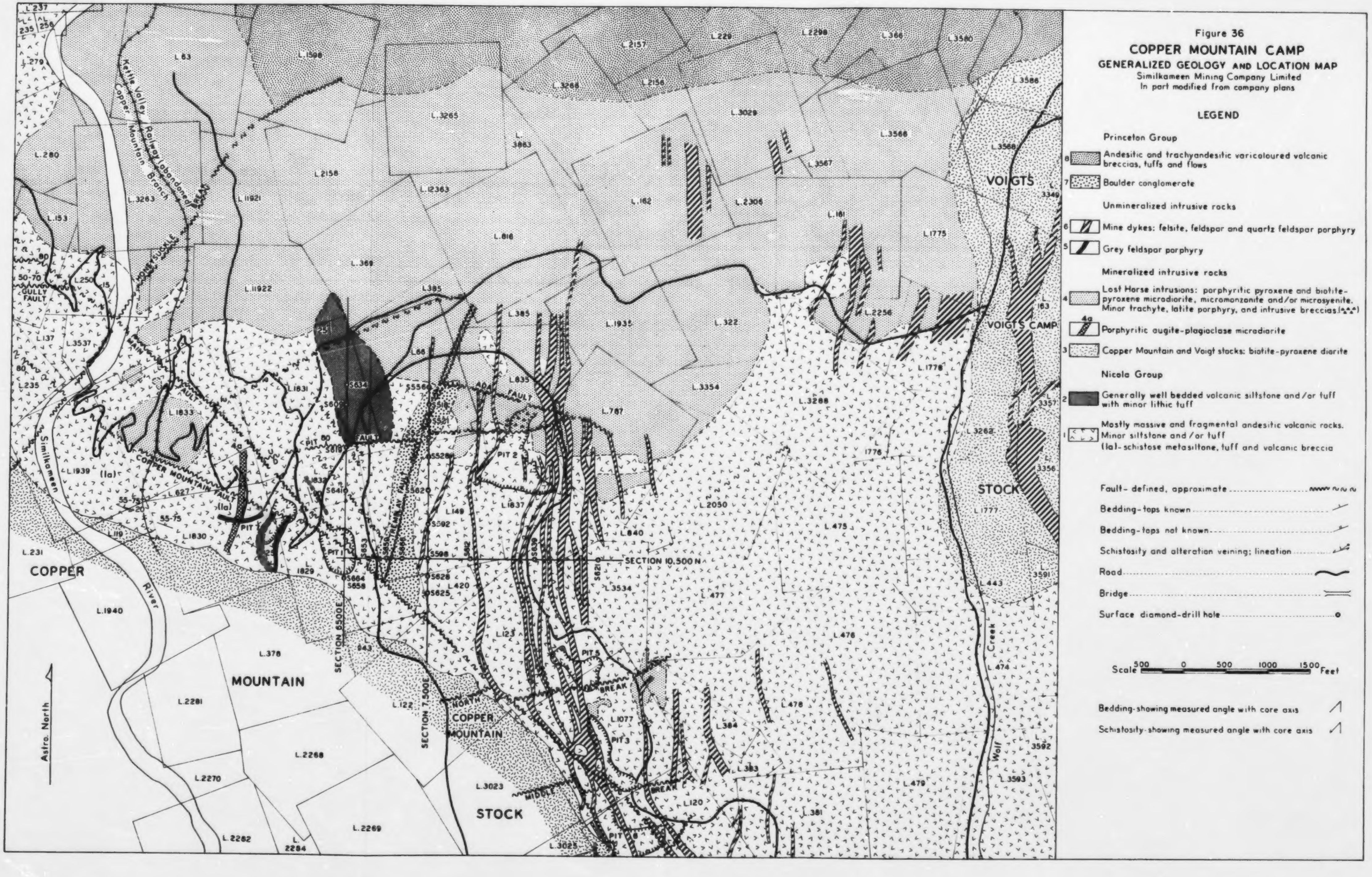


Figure 36

COPPER MOUNTAIN CAMP

GENERALIZED GEOLOGY AND LOCATION MAP

Similkameen Mining Company Limited

In part modified from company plans

LEGEND
Princeton Group
8 Andesitic and trachyandesitic varicoloured volcanic breccias, tuffs and flows
7 Boulder conglomerate
Unmineralized intrusive rocks
6 Mine dykes: felsite, feldspar and quartz feldspar porphyry
5 Grey feldspar porphyry
Mineralized intrusive rocks
4 Lost Horse intrusions: porphyritic pyroxene and biotite-pyroxene microdiorite, micromonzonite and/or microsyenite. Minor trachyte, latite porphyry, and intrusive breccias
4a Porphyritic augite-plagioclase microdiorite
3 Copper Mountain and Voigt stocks: biotite-pyroxene diorite
Nicola Group
2 Generally well bedded volcanic siltstone and/or tuff with minor lithic tuff
1 Mostly massive and fragmental andesitic volcanic rocks. Minor siltstone and/or tuff
(Ia)-schistose metasiltone, tuff and volcanic breccia
Fault- defined, approximate
Bedding-tops known
Bedding-tops not known
Schistosity and alteration veining; lineation
Road
Bridge
Surface diamond-drill hole
Scale 500 0 500 1000 1500 Feet
Bedding-showing measured angle with core axis
Schistosity-showing measured angle with core axis
COPPER
MOUNTAIN
STOCK
NORTH COPPER MOUNTAIN
VOIGTS
STOCK
VOIGTS CAMP
Similkameen River
Wolf Creek
Kettle Valley Railway (abandoned) Copper Mountain Branch
GULLY FAULT
COPPER MOUNTAIN FAULT
FAULT
SECTION 10,500 N
SECTION 8500E
SECTION 7,500E
BREAK
MIDDLE BREAK
PIT 1
PIT 2
PIT 3
PIT 5
PIT
Astro. North
(Ia)
50-70
80
55-75
L.237
L.235
L.256
L.279
L.280
L.153
L.250
L.137
L.3537
L.235
L.1939
L.1833
L.1831
L.627
L.1830
L.119
L.231
L.1829
L.1940
L.378
L.2281
L.2270
L.2268
L.2282
L.2284
L.2269
L.3023
L.3025
L.122
L.843
L.123
L.120
L.63
L.3263
L.1921
L.11922
L.1598
L.2158
L.369
L.3265
L.12363
L.816
L.385
L.3883
L.3266
L.2157
L.2156
L.229
L.3029
L.162
L.2306
L.2298
L.366
L.3580
L.3586
L.3566
L.3568
L.3567
L.161
L.1775
L.2256
L.163
L.3349
L.1935
L.322
L.3354
L.787
L.635
L.66
L.3268
L.1778
L.3357
L.3262
L.1776
L.3356
L.1777
L.2050
L.475
L.477
L.476
L.478
L.479
L.384
L.383
L.381
L.1077
L.3534
L.640
L.637
L.149
L.420
L.443
L.3591
L.474
L.3592
L.3593
S634
S608
S556
S552
S620
S641
S632
S592
S598
S626
S625
S664
S656
S621
25

Owner: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.
Work Done: Geological survey by Pilsum Master, induced polarization survey, and soil sampling for geochemical survey.

WILMAC (No. 339, Fig. 34)

Location: Lat. 49° 23′ Long. 120° 40′ (92H/7E)
On Corral Creek 3½ miles due east of the highway bridge over Whipsaw Creek.
Claims: WILMAC 1 to 18; NAC 1 and 2; MAC 1 to 8, 11, and 13.
Access: By road, 6 miles from Highway No. 3 at Whipsaw Creek bridge.
Owner: William R. Wilkinson.
Operator: CAN WEST INVESTMENTS LTD., 627 Hornby Street, Vancouver 1.
Work Done: Airborne magnetometer survey.
Reference: Assessment Report No. 1852.

RAY (No. 236, Fig. 34)

Location: Lat. 49° 21.3′ Long. 120° 33.5′ (92H/7E)
Astride Hope–Princeton highway, 2 miles south of Whipsaw Creek.
Claims: RAY 6, 9 to 12, 14, and 15.
Operator: TRI VALLEY EXPLORATION LTD., 2627 Ottawa Street, West Vancouver.
Metal: Copper.
Work Done: Topographic map and map of surface workings prepared; three bulldozer cuts totalling 1,250 feet excavated, two pits blasted 20 feet deep; five holes totalling 510 feet in depth drilled by percussion drill.
References: Assessment Reports Nos. 940 and 941.

INGERBELLE (No. 363, Fig. 34)

By V. A. G. Preto

Location: Lat. 49° 20.2′ Long. 120° 33.3′ (92H/7E)
On Highway No. 3, 13 miles south of Princeton.
Claims: Sixty-six Crown-granted and recorded mineral claims.
Access: Via Highway No. 3.
Owner: INGERBELLE MINES LIMITED, P.O. Box 520, Princeton.
Metals: Copper (molybdenum, gold).
Work Done: Five men were employed by the company for 12 months and were engaged in evaluating and assessing the results of surface and underground exploration work done during the previous three years.
References: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 177, 178; 1967, pp. 181, 182; 1968, pp. 208–212; *Geol. Surv., Canada,* Mem. 171, 1934; Montgomery, J. H., 1967, Petrology, Structure and Origin of the Copper Mountain Intrusions near Princeton, British Columbia, unpublished Ph.D. thesis, *U.B.C.*

COPPER MOUNTAIN MINE (No. 348, Fig. 34)

By V. A. G. Preto

Location: Lat. 49° 19.4′ Long. 120° 31.2′ (92H/7E)
On Copper Mountain, 12 miles south of Princeton.
Claims: One hundred and twenty-eight Crown-granted and recorded claims.
Access: Via the Copper Mountain road, 12 miles from Princeton.

Owner: SIMILKAMEEN MINING COMPANY, LIMITED, P.O. Box 520, Princeton.

Metals: Copper (molybdenum, gold).

Work Done: Five men were employed by the company for 12 months and 20 by contractors for nine months. Work was done by and under the supervision of T. N. Macauley and R. Pyper, company geologists. Diamond drilling totalled 8,514 feet in 15 holes of BQ size. Percussion drilling consisted of 3,467 feet in 12 holes of 4⅞-inch diameter and 72,358 feet in 220 holes of 2-inch diameter. Some bulldozer trenching and geological mapping at a scale of 1 inch equals 100 feet was also done.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, pp. 178–180; 1968, p. 206; *Geol. Surv., Canada,* Mem. 171, 1934; Montgomery, J. H., 1967, Petrology, Structure and Origin of the Copper Mountain Intrusions near Princeton, British Columbia, unpublished Ph.D. thesis, *U.B.C.*; Fahrni, K. C., 1951, Geology of Copper Mountain, *Cdn. Min. and Met. Bull.*, Vol. 44.

Description:

The drilling and trenching programme which had been commenced in 1966 by The Granby Mining Company Limited was continued and extended by the Newmont Mining Corporation of Canada Limited, following the purchase of the Granby holdings in 1967, and was carried to completion in 1969.

The programme was successful in outlining two areas of economic grade copper mineralization, and also produced much information which greatly helps in the understanding of the geology of Copper Mountain. The areas of copper mineralization are centred on Pit No. 1 and Pit No. 2 (*see* Fig. 36) and thus are known as the Pit 1 and Pit 2 zones. These two zones are roughly rectangular in plan, with the longer dimension oriented in an east-west direction. Their approximate maximum plan dimensions, respectively, are 2,400 by 900 feet and 3,400 by 1,000 feet. Of the two, the Pit 2 zone has by far the more irregular outline. A third zone of mineralization, roughly comparable in size to the Pit 1 zone, is known to occur in the glory-hole area between Pit 5 and the contact of the Copper Mountain stock to the southwest. This zone, though extensive, is still inadequately known as to its exact shape and grade, and is at present considered only as a possible orebody. The boundaries of the Pit 1 and Pit 2 zones, as crudely outlined above, are arbitrary vertical assay boundaries and merely encompass volumes of ground which are mostly of economic grade. Copper mineralization extends far beyond these boundaries and is in fact widespread on Copper Mountain, but, at present, nowhere else in the camp is it known to occur in sufficient amount and grade to be economic.

Figures 36 and 37 give a generalized and greatly simplified picture of the geology of Copper Mountain. A zone of volcanic rocks of the Nicola Group extends in a northwesterly direction from Wolf Creek to the Similkameen River and beyond, and is confined to the southwest by the Copper Mountain stock and to the north by a complex of intrusive rocks which forms part of the Lost Horse intrusions. Both volcanic and intrusive rocks are cut by a swarm of northerly trending felsitic dykes, known as the Mine dykes. These dykes appear to be more numerous in the immediate vicinity of the Copper Mountain mine. This, however, is largely an erroneous impression, because the ground near the mine workings has been explored in much greater detail than elsewhere, and the dykes do not have a prominent surface expression. In fact, dykes identical in composition and trend to the Mine dykes have been found several miles east and southeast of Copper Mountain, but not for any appreciable distance to the west of it.

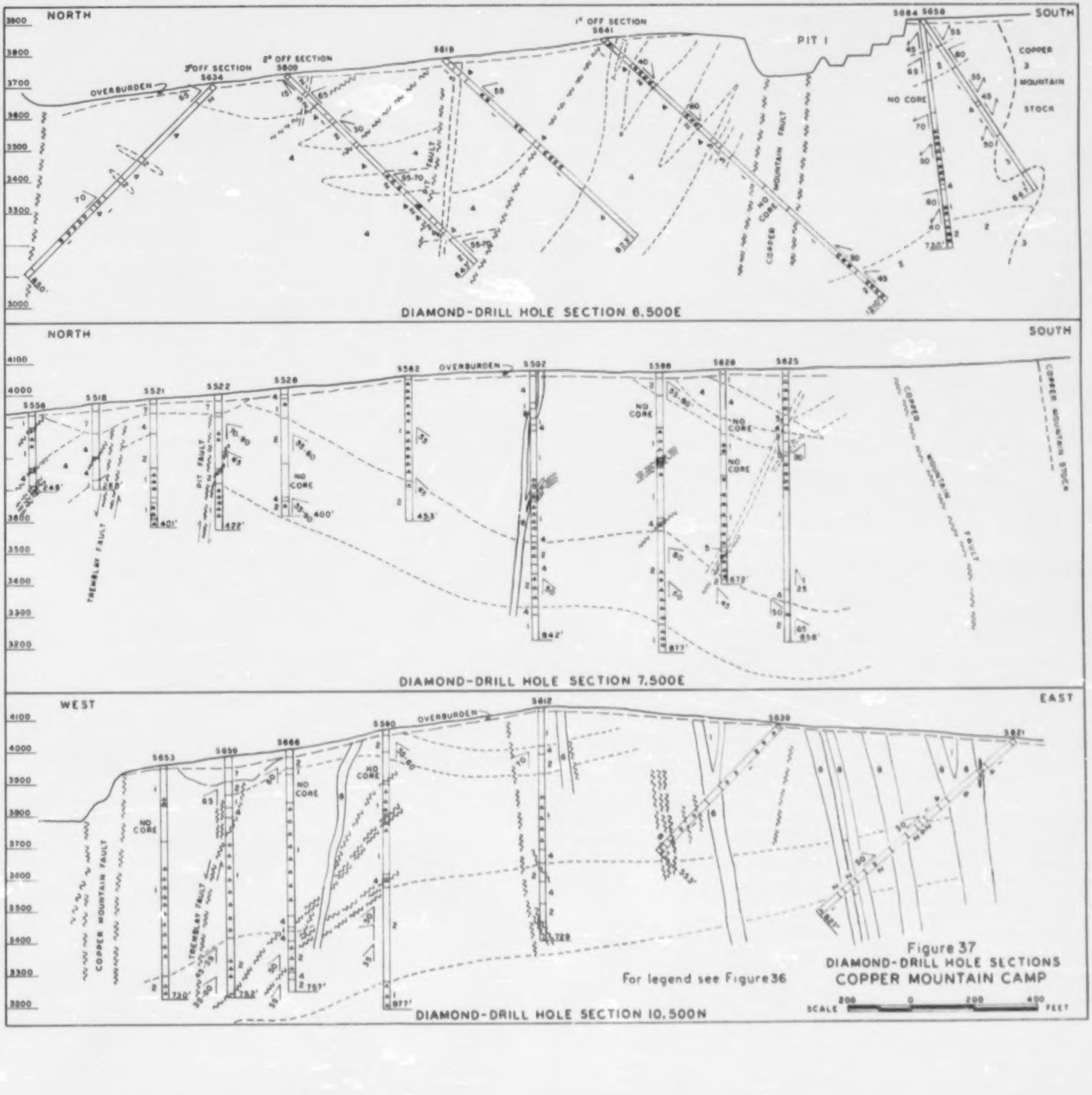

NORTH
SOUTH
1° OFF SECTION
5641
PIT I
5664
5658
COPPER
3
MOUNTAIN
STOCK
3° OFF SECTION
5634
2° OFF SECTION
5600
5619
OVERBURDEN
NO CORE
PIT FAULT
COPPER MOUNTAIN FAULT
NO CORE
730'
DIAMOND-DRILL HOLE SECTION 6,500E
NORTH
SOUTH
5556
5518
5521
5522
5528
5562
OVERBURDEN
5592
5598
5626
5625
NO CORE
COPPER MOUNTAIN FAULT
COPPER MOUNTAIN STOCK
TREMBLAY FAULT
PIT FAULT
401'
472'
400'
453'
672'
842'
877'
856'
DIAMOND-DRILL HOLE SECTION 7,500E
WEST
EAST
5653
5659
5666
5590
OVERBURDEN
5612
5630
5621
NO CORE
COPPER MOUNTAIN FAULT
TREMBLAY FAULT
729'
730'
752'
757'
877'
DIAMOND-DRILL HOLE SECTION 10,500N
For legend see Figure 36
SCALE 200 0 200 400 FEET

Figure 37
DIAMOND-DRILL HOLE SECTIONS
COPPER MOUNTAIN CAMP

Sedimentary and volcanic rocks of the Princeton Group overlie unconformably all the intrusive and volcanic rocks mentioned above. On Copper Mountain, a narrow trough of boulder conglomerate, less than 100 feet thick, follows the course of the Tremblay fault from the Copper Mountain fault northward to the Ada fault. The conglomerate contains boulders of altered and mineralized intrusive and volcanic rocks, but is itself not mineralized. This rock unit is very poorly exposed, and although it is almost certainly not cut by the Tremblay, Pit, and Ada faults, these important structures are shown on Figure 36 as crossing it, solely for purposes of clarity. The conglomerate, however, appears to stop against the Copper Mountain fault, suggesting some late movement along this structure. Similarly, volcanic rocks of the Princeton Group are cut by the northeast trending Honeysuckle Break on the No. 15 Fractional claim (Lot 1598).

Although most of the Nicola volcanic rocks on Copper Mountain are structureless massive flows and breccias, at least two units of generally well-bedded tuff and (or) volcanic siltstone exist and, through drilling and underground development work, their extent is sufficiently known to outline the structure of the Nicola rocks on Copper Mountain. The two marker beds, designated as unit 2 on Figure 37, are approximately 100 and 300 feet thick, are separated by some 300 to 400 feet of massive and fragmental volcanics, and resemble very closely unit 3 of Ingerbelle (Ann. Rept., 1968, pp. 208–212). They indicate that most of Copper Mountain is underlain by gently to moderately dipping strata in their original upright position. Exceptions to this rule are found in at least two places: (1) On the Triangle Fractional claim a small fault-bounded area of generally massive rocks contains a thin, well-bedded marker unit which shows that the strata are here nearly vertical, trend northwestward, and face northeast (*see* Fig. 36). These rocks are considered to be part of a tilted fault block, shown on Figure 36. (2) In the area bounded by the Copper Mountain fault, the contact of the Copper Mountain stock, the northerly trending dyke 4a (*see* Fig. 36) and the Honeysuckle Break, a sequence of thinly laminated schistose metasiltstone, tuff, and volcanic breccia strikes parallel to the intrusive contact and dips steeply to the northeast. These rocks have a well-marked mineral lineation which plunges gently to the east-southeast, and is made easily recognizable by an appreciable amount of widespread metamorphic biotite. Secondary pyroxene becomes a major metamorphic mineral very close to the intrusive contacts, and the rock is slightly less schistose. The schistosity, however, is here paralleled by a light-grey to nearly white alteration banding which continues to the southeast beyond dyke 4a, truncating the bedding where it dips gently to the northeast. West of dyke 4a, the schistosity parallels the general compositional layering of the rocks. It appears that dyke 4a probably follows an older northerly trending fault, and thus the area west of it probably is bound on three sides by faults and on the fourth side by the Copper Mountain stock. The rocks in this area are thus either part of a tilted fault block or are the limb of a faulted northwesterly trending fold which pre-dated the emplacement of the Copper Mountain stock.

As shown on Figure 36, a great number of faults cut intrusive and volcanic rocks on Copper Mountain. Of these, the largest ones have been given a name, and show the general pattern of fracturing. However, innumerable smaller faults, shears, and fractures are found on Copper Mountain, especially in the central part of the area. Northwesterly trending structures such as the Copper Mountain fault and fractures parallel to it, or northeasterly trending faults and fractures such as the Mine Breaks and the ore fractures, have been known and referred to for a long time (Fahrni, 1951). Recent work, however, has brought into focus the existence and importance of more northerly trending faults such as the Tremblay fault, which is almost entirely concealed by the Tertiary conglomerate, and of easterly trending faults such as the Pit and Ada faults, which have similarly trending structures as their counterpart at Ingerbelle, west of the Similkameen River. It would appear that easterly trending faults, such as the Ada and Pit faults, are at least in part older than northerly or northwesterly trending structures as they are either cut by them or stop against them.

It is believed that all faults mentioned above and, to a lesser extent, subsidiary structures parallel to them originated before the main period of mineralization and played an important part as ore controls, probably acting as avenues along which much of the ore-bearing solutions moved. This is suggested by the prominence of the long-known northeasterly trending "ore-fractures" in some parts of the camp, by the fact that all of the major faults run through or along the edges of orebodies (*see* Fig. 36) at least for a good part of their course, and by the fact that structures such as the Pit and Copper Mountain faults have definite "tails" of copper mineralization, albeit not economical, leading out along them from known orebodies. Most of the best known mineralization on Copper Mountain occurs in the central part of the area shown on Figure 36, where all the above-mentioned faults are strongest, best developed, and intersect one another.

Another factor that is believed to have played an important role in the localization of copper mineralization at Copper Mountain are rocks of the Lost Horse intrusions. This complex of intrusive rocks, all of them quartz poor, medium- to rather fine-grained and porphyritic, includes phases that range in composition from diorite to syenite, and show a great variation in amount of alteration. Lost Horse type rocks are known to occur from Wolf Creek west to the Boundary fault at Ingerbelle, and are most abundant in the northern part of this area (*see* Fig. 36 and Fig. 24, Ann. Rept., 1968). The complexity of rock types and alteration, and the lack of adequate exposures are such that only two main subdivisions can be made in the Lost Horse intrusions. One group, encompassing by far the larger amount of rocks, includes all those, altered or not, which do not form obvious dykes. The other group, consisting mostly of biotite-latite porphyry and of biotite-pyroxene microsyenite porphyry, includes rocks which are generally fresh and which cut older Lost Horse rocks as well-defined dykes up to 100 feet wide. Copper mineralization may occur in both groups, but is found to be best and most common in the older rocks. All Lost Horse rocks, whether fresh or extensively albitized, mineralized, or barren, have as a distinguishing characteristic the presence of disseminated, tiny, distinct phenocrysts of apatite which may be seen either with the naked eye or by using a good pocket magnifier.

For the following reasons it is suggested that rocks of the Lost Horse intrusions played a more direct role in the localization of copper mineralization than rocks of the Copper Mountain stock.

1. Lost Horse type rocks both at Copper Mountain and at Ingerbelle occur within or very close to orebodies and at many places form excellent ore.
2. Orebodies such as the one at Pit 2 crudely follow the contact between Lost Horse and Nicola rocks and include rocks of both units. At the north end of Pit 2 a body of intrusive breccia, roughly circular in plan and apparently forming a pipe-like body which plunges steeply to the north, contains as fragments almost exclusively Lost Horse rocks, and has excellent chalcopyrite-magnetite mineralization both in the matrix and in some of the fragments.
3. At Ingerbelle, and, but less obviously, at Copper Mountain albitization and hornfelsing of Nicola rocks is stronger close to Lost Horse rocks, and, if occurring in the right amount, appears to be a factor conducive to copper mineralization.

4. Although Nicola rocks, rock alteration, and faults similar to those present at Copper Mountain and Ingerbelle are found at other places along the periphery of the Copper Mountain stock, Lost Horse rocks are not present nor is copper mineralization of comparable extent and intensity to that of the Copper Mountain-Ingerbelle area.

The bornite-chalcopyrite fracture-filling type of mineralization that formed most of the ore mined in earlier years at Copper Mountain gives way rapidly to chalcopyrite-pyrite mineralization northeast of the Copper Mountain fault. Although in some places sulphide minerals are so finely distributed in the rock as to appear disseminated, in fact the greatest part if not all of the sulphides occur as fillings or coatings of fractures, which range in thickness from a few hundredths of a millimetre to several inches or, as in some rare cases, 2 or 3 feet. Copper mineralization as it is known today is not confined to or preferentially found in any particular rock type. In a favourable area good ore is found in all rock types, with massive intrusive and volcanic rocks or coarse fragmental rocks being as well mineralized as fine-grained tuff or volcanic sediments.

T (No. 273, Fig. 34)

LOCATION: Lat. 49° 19.5′ Long. 120° 36.5′ (92H/7E)
Two miles southwest of Kennedy Mountain, on the southeast side of Whipsaw Creek, adjoining the property of Ingerbelle Mines Limited.

CLAIMS: T 1 to 22.

OWNER: ANCHOR MINES LTD., 807, 409 Granville Street, Vancouver 2.

METAL: Copper.

WORK DONE: Three holes totalling 750 feet were diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 212.

AXE (No. 309, Fig. 34)

LOCATION: Lat. 49° 20′ Long. 120° 35′ (92H/7E)
Adjacent to and northwest of Highway No. 3, 14 miles south of Princeton.

CLAIMS: AXE 1 to 16.

ACCESS: Via Highway No. 3.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

WORK DONE: Induced polarization survey.

REFERENCES: Assessment Reports Nos. 1745 and 2125.

JILL, TOW, JJJ (No. 364, Fig. 34)

LOCATION: Lat. 49° 18.1′–20′ Long. 120° 34.7′–37.6′ (92H/7E)
Between Whipsaw and Deep Gulch Creeks, 11½ miles south-southwest of Princeton.

CLAIMS: JILL 1 to 6, 3 Fraction, 8 to 25, 27, 29, 31, 33, 35, 37, 39; TOW 2, 4, 9 to 19; JJJ 1 to 12, including 72 claims in all.

ACCESS: By road, 12 miles south from Princeton.

OPERATOR: SCURRY-RAINBOW OIL LIMITED, 539 Eighth Avenue S.W., Calgary 2, Alta.

METAL: Copper.

WORK DONE: Geology mapped, 20 line-miles of ground magnetometer survey run, and 1,500 feet of diamond drilling done.

REFERENCES: Assessment Reports Nos. 948, 1601, and 2243.

DESCRIPTION: Disseminated sulphides in brecciated volcanic rock.

NEV (No. 364, Fig. 34)

Location: Lat. 49° 17.2′–18.5′ Long. 120° 36′–39.7′ (92H/7E)
Between head of Friday Creek and Whipsaw Creek, 5 miles southwest of the highway bridge over Whipsaw Creek.

Claims: NEV 1 to 44.

Access: By road, 14 miles from Princeton.

Owner: GRANDORA EXPLORATIONS LTD., 511, 850 West Hastings Street, Vancouver 1.

Metal: Copper.

Work Done: Seven trenches, total length 600 feet, bulldozed, and 4½ miles of road constructed up Friday Creek.

ILK, ELK, FRI, PR (No. 357, Fig. 34)

By V. A. G. Preto

Location: Lat. 49° 16.4′–20.7′ Long. 120° 30′–35′ (92H/7E)
On both sides of Similkameen River between Friday and Saturday Creeks and near Combination Creek.

Claims: Leases M48, M51, M56, M58, M70; SKI 1 to 4; U & I; MARQUIS OF LORNE; ILK, ILK 1 to 3, 5 to 8, 10, 11; FRI 1 to 12, 14 to 34; NI, NI 1 to 7; PR 1 to 6; ELK Fractions 1 to 8; AXE 1 to 16, a total of 131 claims.

Access: By road, 16 miles from Princeton.

Owner: Kalco Valley Mines Ltd.

Operator: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Metals: Copper (molybdenum).

Work Done: Geological mapping at 1 inch equals 400 feet was done on the AXE claims and on parts of the rest of the property to complete 1968 mapping. An induced polarization and a geochemical survey were also carried out on the AXE claims. Fifteen 1¾-inch percussion holes totalling 2,850 feet were drilled.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 214; Assessment Reports Nos. 1745, 1840, and 2125.

MONEY (No. 284, Fig. 34)

Location: Lat. 49° 18′ Long. 120° 31′ (92H/7E)
On east bank of Similkameen River, opposite mouth of Friday Creek, 11 miles south of Princeton.

Claims: OREGON (Lot 2265S), MICHIGAN (Lot 2285S), PEARCE No. 4 Fraction (Lot 2631S), PEARCE No. 3 (Lot 2579S), SILVER No. 1 Fraction (Lot 2576S), BENARD (Lot 2007S), GREY ROCK (Lot 2051S), H.P. Fraction (Lot 2575S), LEMON No. 7 (Lot 2008S), UPSILON Fraction (Lot 2013S), TESSIE (Lot 2009S), LEMON No. 9 (Lot 2011S), FRASER No. 1 Fraction (Lot 2929S), BLACK BIRD (Lot 2272S).

Operators: W. DAVIDSON, Burnaby, and A. MOYES-WANN, West Vancouver.

Work Done: Line-cutting.

Reference: Assessment Report No. 1939 (line-cutting only).

OX (No. 235, Fig. 34)

Location: Lat. 49° 16′ Long. 120° 30′ (92H/7E)
At 4,000 feet elevation on east side of Similkameen River, opposite mouth of Sunday Creek.

Claims: OX 1 to 18, SUN 3 to 8, SOB 9 to 12, and others, for a total of 28 claims.

Access: By road, 12 miles from Princeton.

Owner: KECHIKA MINES LTD., 1040, 777 Hornby Street, Vancouver 1.

Metal: Copper.

Work Done: Surface workings mapped, geology of all claims mapped by R. D. Westervelt, all claims covered by 28 line-miles of aeromagnetic survey.

References: Assessment Reports Nos. 1246 and 1822.

Description: Chalcopyrite, pyrite, and magnetite disseminated in brecciated volcanics, sediments, and diorite.

SOB (No. 282, Fig. 34)

Location: Lat. 49° 16′ Long. 120° 28′ (92H/8W)
Three miles east of Similkameen River, opposite mouth of Sunday Creek, about 13 miles south of Princeton.

Claims: SOB 1 to 8.

Owner: AURUS MINING LTD., 230, One Bentall Centre, Vancouver 1.

Work Done: Magnetometer and geochemical surveys.

Reference: Assessment Report No. 2032.

ILSE (No. 282, Fig. 34)

Location: Lat. 49° 16′ Long. 120° 28′ (92H/8W)
About 4½ miles east of the Similkameen River, due east of the mouth of Sunday Creek.

Claims: ILSE 1 to 12.

Operator: AURUS MINING LTD., 230, One Bentall Centre, Vancouver 1.

Work Done: Ground magnetometer and geochemical soil survey.

Reference: Assessment Report No. 1904.

WHIP, SAW, PICK (No. 251, Fig. 34)

Location: Lat. 49° 17.6′ Long. 120° 43.9′ (92H/7E)
On north side of Whipsaw Creek, approximately 8 miles upstream from the bridge on Highway No. 3.

Claims: WHIP 1 to 8, SAW 1 to 8, AXE 1 to 6, PICK 1 to 6.

Access: Twenty-one miles south from Princeton via Highway No. 3 and the Whipsaw Creek road.

Owner: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

Metals: Copper, molybdenum.

Work Done: A soil survey was made of the AXE 3, 4, 5, and 6 claims and four diamond-drill holes totalling 1,500 feet were drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 212.

MJ (No. 319, Fig. 34)

Location: Lat. 49° 17.2′ Long. 120° 46.3′ (92H/7W)
Near head of Whipsaw Creek, about 18 miles southwest of Princeton.

Claims: MJ 8 to 23, HONDA 4 to 8, LMR 1 and 2.

Access: By road up Whipsaw Creek, 12 miles from Highway No. 3.

Operator: MICHAEL E. JORGENSEN, 3091 West 35th Avenue, Vancouver 13.

Work Done: Geochemical soil survey.

Reference: Assessment Report No. 1930.

SILVERTIP (No. 319, Fig. 34)

Location: Lat. 49° 17′ Long. 120° 45′ (92H/7W)
At head of Whipsaw Creek, 21 miles southwest of Princeton.

Claims: SILVERTIP 1 and 2, OK 1 to 5; Mineral Lease M30.

Access: Twelve miles by road from Highway No. 3.

Owner: SILVER TIP EXPLORATIONS LTD., P.O. Box 697, Princeton.

Metals: Copper, zinc, silver.

Work Done: One adit advanced 90 feet.

References: *Minister of Mines, B.C.*, Ann. Repts., 1931, p. 130 (*see* Copper Basin Mines); 1968, p. 213.

RED STAR (No. 212, Fig. 34)

By James T. Fyles

Location: Lat. 49° 08.8′ Long. 120° 36.5′ (92H/2E)
On Highway No. 3, 30 miles from Princeton, about 1½ miles west of the junction of the Similkameen and Pasayton Rivers.

Claims: RED STAR (Lot 273), Mineral Lease M67, and more than 50 surrounding located claims between the Manning Park boundary and the Similkameen River.

Access: By road from Princeton.

Owners: SPENHO MINES LTD. and SPENCER H. DAVIS; company office, 716, 789 West Pender Street, Vancouver 1.

Metals: Copper, zinc, silver.

Work Done: Bulldozer trenching, diamond drilling, and sampling.

References: *Minister of Mines, B.C.*, Ann. Rept., 1938, p. D 25; *Geol. Surv., Canada*, Mem. 243, p. 104.

Description:

The RED STAR was discovered in 1900 and for many years was explored by Charles Bonnevier of Princeton. The property is within a wide northerly trending zone of soft schistose rocks which slump at the surface and are difficult to hold in underground workings. They outcrop on the steep slope north of the Similkameen River where several old adits have been driven. Two adits close together at an elevation of 3,900 feet are called No. 1 and No. 2 adits in old reports and a third to the south and about 250 feet below is No. 3. The adits were inaccessible when the property was visited in August but extensive new bulldozer cuts on the slope near the workings and on the gentle slopes to the northwest expose the schists and the mineralization very well.

On the steep slope most of the rocks are fine-grained light-coloured quartz sericite, and talcose chlorite schist in which the schistosity strikes north and dips steeply west. The margins of the schist are poorly defined. A mass of sheared granitic rock is exposed in the lowest southeastern corner of the area of outcrops and a layer of dark-grey carbonaceous phyllite occurs along the western side of the schist. Farther west are outcrops of blocky fragmental volcanic rocks which seem to form the western edge of the schists in the immediate area. A large isoclinal fold plunging 45 degrees to the south, exposed at one place in these rocks, suggests that regionally the distribution of the schists and blocky volcanic rocks may be controlled by folds and thus may be quite irregular.

The schists contain scattered crystals of pyrite. Locally, bands of schist up to several feet wide and a few tens of feet long are rich in pyrite and are copper stained. The schists also contain lenses of quartz with minor iron carbonate and, rarely, pods of massive sulphides, including pyrite, chalcopyrite, bornite, chalcocite, and sphalerite. These quartz lenses resemble boudins with the long axis plunging at a low angle to the north, the intermediate axis almost vertical, and the shortest axis perpendicular to the schistosity. They are mainly a few inches to a foot in longest dimension, but one barren lens 2 to 3 feet thick and at least 15 feet long is exposed in a new cut between the upper and lower adit portals. They are largely barren, but several containing sulphides have been explored in the old workings and 40 tons of sorted ore was shipped in 1964 and 1965. Assays of selected samples are listed in the following table:—

Number, Location, and Description	Width	Gold	Silver	Copper	Zinc
	Ft.	Oz. per Ton	Oz. per Ton	Per Cent	Per Cent
1. Road cut 500 feet southeast and 120 feet below upper adits. Limonitic copper-stained schists coated with sulphates	25	Trace	Trace	0.06	......
2. Open cut 10 feet above upper adit. Schist including one quartz-sulphide lens 6 inches thick	10	......	......	0.04	0.26
3. Just east of sample No. 2. Pyritic schist	27	......	......	Trace	(1)
4. Just east of sample No. 2, including quartz-sulphide lens 1 foot thick	10	......	......	0.48	1.52
5. Above upper adit. Quartz-sulphide lens	1	......	......	1.04	29.60
6. Thirty feet east of upper adit. Quartz-sulphide lens	1	......	......	3.24	22.10
7. Open cut above the steep slope about 1,000 feet northwest of the upper adit. Selected chips of pyritic schist	—	......	......	0.04	0.04

[1] Not detected.

The samples indicate that the pyritic schist, although locally stained with malachite, contains very little if any copper. The values are entirely associated with the sulphide-bearing quartz lenses. Production records indicate that the 40 tons of material shipped in 1964 and 1965 had an average grade of: Silver, 2.1 ounces per ton; copper, 6.5 per cent; and zinc, 8.1 per cent.

About half a mile northwest of the upper adits an old pit and a short shaft expose small lenses of quartz in somewhat sheared volcanic rocks. The quartz contains scattered chalcocite and locally is coated with azurite.

OSOYOOS MINING DIVISION

BRENDA LAKE

DAN (No. 277, Fig. 34)

LOCATION: Lat. 49° 55′ Long. 119° 58′ (82E/13W)

Two miles northeast of Brenda mine, 15 miles northwest of Summerland.

CLAIMS: DAN 1 to 13.

ACCESS: By tractor road from Brenda mine.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Soil survey involving collection of 128 samples for geochemical analysis.

REFERENCE: Assessment Report No. 1970.

BRENDA MINE (No. 346, Fig. 34)

By David Smith

LOCATION: Lat. 49° 52.8′ Long. 120° 00.5′ (92H/16E)
One and one-half miles southeast of Brenda Lake.

CLAIMS: Mineral Leases 58, 59, 77, 78, 79, 82, and 83 plus 238 mineral claims and fractions. The open pit will lie primarily within mineral lease 58.

ACCESS: The original camp established at MacDonald Lake was still used by employees of Brenda Mines Ltd., but in 1969 was gradually being phased out. Access to the property is provided by 4 miles of paved road and 14 miles of gravel road from Peachland.

OWNER: BRENDA MINES LTD., P.O. Box 420 Peachland; G. H. Montgomery, mine manager; W. Allan, mine superintendent; J. Knapp, mill superintendent; G. R. Harris, maintenance superintendent; H. Tetu, plant superintendent.

METALS: Copper, molybdenum.

WORK DONE:

The construction of the crushing and concentrating units was completed and tuning-up of the mill commenced in early December, 1969. Shipping of concentrates is scheduled to begin early in 1970. There were approximately 100 construction workers on the site at year end, down from a high of 650 in August.

Building of the tailings and reclaim dams was completed in December. During the year, 2,253,000 tons of waste rock was hauled from the pit for use in building the dams. A further 5,500,000 tons of material was removed from the pit bringing the total tonnage stripped during the pre-production period to 8,700,000 tons. The stockpiling of marginal-grade ore and mill-feed ore was begun in late 1969.

Equipment consists of eleven 100-ton Lectra Haul trucks, three 11-cubic-yard electric shovels, and two 60-R rotary drills. A twelfth Lectra Haul truck is on order.

Brenda Mines Ltd. at year end had a payroll of 260, comprising: Staff, 65; pit, 75; mill, 45; maintenance, 75.

A concentrator and crushing-plant was built in 1969 having a capacity of 24,000 tons per day. The major equipment consists of: One primary crusher driven by a 700-horsepower motor, two secondary crushers driven by two 300-horsepower motors, three tertiary crushers driven by three 300-horsepower motors, four ball-mills driven by four 2,750-horsepower motors, four rod-mills driven by four 1,950-horsepower motors, eight cyclone pumps driven by eight 300-horsepower motors, three vacuum pumps driven by three 250-horsepower motors, three blower fans driven by three 250-horsepower motors, 394 flotation cells driven by one hundred and twenty 20-horsepower motors, sixty-seven 10-horsepower motors, ten 7½-horsepower motors, two compressors driven by two 200-horsepower motors, and one regrind mill driven by one 250-horsepower motor. Other equipment will consist of conveyors and filtering equipment.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1967, pp. 183–211; 1968, p. 215.

DONA (No. 261, Fig. 34)

Location: Lat. 49° 49′ Long. 119° 56′ (82E/13W)
One and one-half miles southeast of Peachland Lake.

Claims: DONA 1, 3, 6, 8, 10 to 16, 102 to 118; ERK 1.

Access: By road, about 12 miles from Peachland.

Owner: BONNET MINES LTD., 515, 602 West Hastings Street, Vancouver 2.

Work Done: Survey grid cut on whole claim group and geochemical soil survey made.

References: Assessment Reports Nos. 1978 (line-cutting) and 2162.

PEACHLAND

SID, KC (No. 322, Fig. 34)

Location: Lat. 49° 44.8′–46.7′ Long. 119° 49′–50.7′ (82E/12W, 13W)
On and west of Peachland Creek, 3¾ miles west of Peachland.

Claims: SID 1, 3, 4, 6; KC 1 to 13.

Access: By road from Peachland.

Owner: BRENDAKO MINES LTD., 543 Granville Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: One trench 80 feet long bulldozed in overburden.

Description: Chalcopyrite and pyrite in quartz veins in quartz diorite.

CACHE (No. 306, Fig. 34)

Location: Lat. 49° 45′ Long. 119° 53.9′ (82E/13W)
Between Eneas Lake and Darke Lake Parks at the head of Eneas Creek, 7 miles southwest of Peachland.

Claims: CACHE 1 to 39.

Access: By road from Peachland.

Owner: KOPOROK MINES LTD., 810, 718 Granville Street, Vancouver 2.

Metals: Copper, silver.

Work Done: Aerial magnetometer survey.

References: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 214 (*see* Cache, Glad, Asp); Assessment Report No. 1843.

GLAD (No. 307, Fig. 34)

Location: Lat. 49° 41.8′ Long. 119° 53.9′ (82E/12W)
Adjoining Darke Lake Park at the southwest corner, 8 miles southwest of Peachland.

Claims: GLAD 1 to 34.

Access: By road from Peachland.

Owner: KOPOROK MINES LTD., 810, 718 Granville Street, Vancouver 2.

Metals: Copper, silver.

Work Done: Aerial magnetometer survey.

References: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 214 (*see* Cache, Glad, Asp); Assessment Report No. 1843.

SUMMERLAND

REX, RONDA (No. 209, Fig. 34)

LOCATION: Lat. 49° 38′ Long. 120° 00′ (92H/9E)
On the south bank of Lost Chain Creek, 15 miles west of Summerland.

CLAIMS: REX, RONDA.

OWNER: CAIRN MINES LTD., 301, 540 Burrard Street, Vancouver 1.

WORK DONE: A magnetometer and geochemical survey of RONDA 1 to 7, inclusive, and RONDA 10, 12, 14, and 16 claims; an electromagnetic survey of parts of the REX 2, 13, 14 and RONDA 14, 15, 16, and 24 claims. Five hundred soil samples were taken and 500 line-miles of geophysical work was done.

REFERENCE: Assessment Report No. 1950.

OKANAGAN FALLS

BEV, LLOYD, DEN (No. 237, Fig. 34)

By B. N. Church

LOCATION: Lat. 49° 20′–24′ Long. 119° 28′–34′ (82E/5E, 6W)
The scattered claim blocks are east of the south end of Skaha Lake and within a radius of 4 miles northeast of the village of Okanagan Falls.

CLAIMS: LLOYD 1 to 18, DALE 3 to 6, DEN 1 to 58, BEV 5 to 8.

ACCESS: The claims are mostly in open country and readily accessible in a few minutes drive along farm and logging-roads from Okanagan Falls.

OWNER: DUSTY CHIEF MINES LTD., 1700, 777 Hornby Street, Vancouver 1.

METALS: Gold, silver.

WORK DONE: Line-cutting on LLOYD and DEN.

REFERENCES: *Geol. Surv., Canada,* Map 627A, Okanagan Falls; Assessment Report No. 1967.

DESCRIPTION: The LLOYD and DEN claims are underlain by the Shuswap gneiss complex whereas the BEV claims cover Early Tertiary volcanic beds. BEV and LLOYD adjoin the Dusty Mac property located to the south.

DUSTY MAC (No. 351, Fig. 34)

By B. N. Church

LOCATION: Lat. 49° 21′ Long. 119° 33′ (82E/5E)
About 20 miles south of Penticton just east of the south end of Skaha Lake, including part of the village of Okanagan Falls.

CLAIMS: DUSTY 1 to 16, MAC 1 to 10, and others, including 163 claims in all.

ACCESS: The village of Okanagan Falls, immediately west of the main prospect, is served by Trans-Provincial Highways Nos. 3 and 97 and the Okanagan branch line of the Canadian Pacific Railway.

OWNER: Dusty Mac Mines Ltd.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Gold, silver.

WORK DONE: Work completed up to the end of January, 1970, included 26 diamond-drill holes totalling more than 2,300 feet, 101 percussion holes, and two bulk samples, one of 26 tons and another of 80 tons.

REFERENCES: *Geol. Surv., Canada,* Map 627A, Okanagan Falls; Church, B. N., 1967, Geology of the White Lake Basin, B.C., unpublished Ph.D. thesis, *U.B.C.*

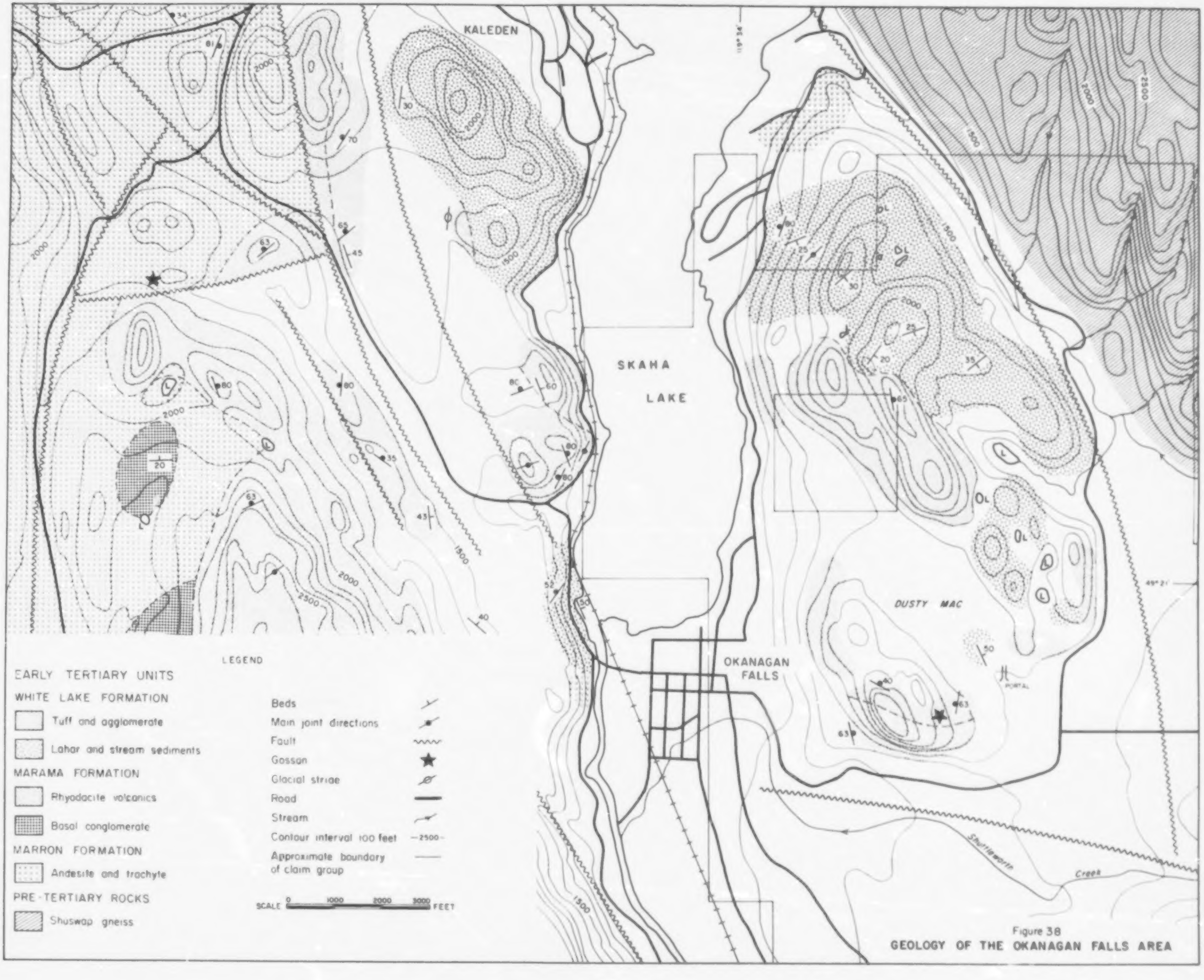

KALEDEN
SKAHA LAKE
OKANAGAN FALLS
DUSTY MAC
PORTAL
Shuttleworth Creek
119° 34'
49° 21'
2000
2500
1500
LEGEND
EARLY TERTIARY UNITS
WHITE LAKE FORMATION
Tuff and agglomerate
Lahar and stream sediments
MARAMA FORMATION
Rhyodacite volcanics
Basal conglomerate
MARRON FORMATION
Andesite and trachyte
PRE-TERTIARY ROCKS
Shuswap gneiss
Beds
Main joint directions
Fault
Gosson
Glacial striae
Road
Stream
Contour interval 100 feet
Approximate boundary of claim group
SCALE 0 1000 2000 3000 FEET

Figure 38
GEOLOGY OF THE OKANAGAN FALLS AREA

DESCRIPTION:

The deposit under current investigation is about 1 mile east of Okanagan Falls. It is a lense-like zone of silicified Early Tertiary (Eocene?) volcanic and sedimentary debris containing minor disseminated pyrite, chalcopyrite, free gold, and native silver. Some published assays on this material show: Gold, more than 0.20 ounce per ton; silver, 6.60 ounces per ton. The early phase of surface investigation and drilling indicates that the mineralization extends over an area measuring roughly 150 by 200 feet with local thickness in excess of 30 feet.

The rocks which host this mineralization are assigned to the White Lake Formation. These are mainly light-coloured feldspathic pyroclastic beds, thick lahar deposits, and some stream and lake sediments. Older and locally gossaniferous Tertiary rocks in the area belong to the Marama Formation, composed mainly of porcelaneous rhyodacite lava and minor basal conglomerate, and the Marron Formation which consists of brown andesite and cream-coloured trachyandesite lavas and pyroclastics. Arc-fusion determination of glass from 39 volcanic samples from the regional Early Tertiary suite shows a predominance of intermediate and acid compositions and a paucity of basaltic rocks (*see* Fig. 39).

The deposit lies on the northeast-dipping south limb of a downfaulted syncline (*see* Fig. 38). Strong regional cross-fractures striking approximately 025 degrees are almost perpendicular to the fold axis at about 125 degrees, plunge 20 degrees southeast (*see* Fig. 40). In this area the main faults of the Okanagan Rift System strike roughly 100 degrees and 155 degrees, the latter azimuth being the dominant direction.

Three theories on mineralization are currently being tested:—

(1) Silification and mineralization is controlled by the local fracture system.

(2) The ore-bearing solutions have emanated from a volcanic pipe and have been trapped under shales and lahar beds.

(3) The deposit is epiclastic, having a shoe-string form.

Good evidence is present supporting all three theories. The investigation now in progress should reveal the ultimate source and control of the ore.

A. E. Soregaroli is in charge of the property.

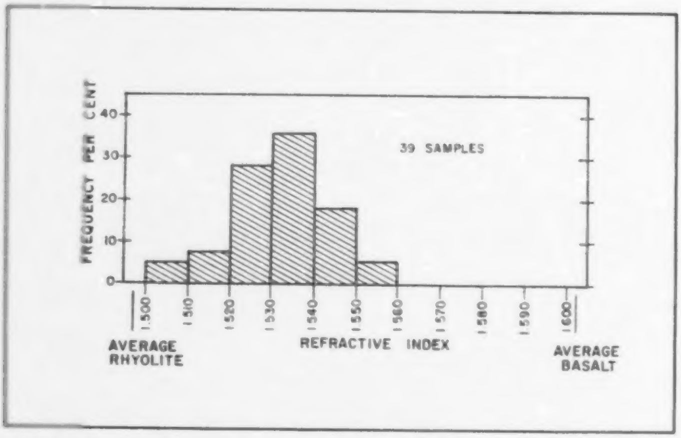


Figure 39. Dusty Mac property, composition frequency distribution of Early Tertiary volcanic rocks in the South Okanagan-Boundary areas.

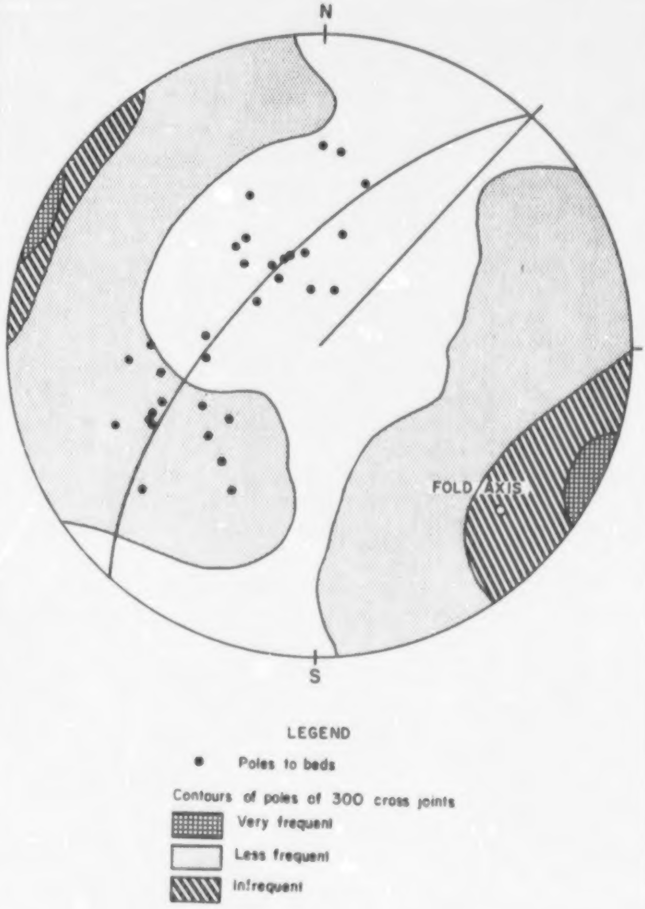


Figure 40. Dusty Mac property, equal area plot of fractures and beds.

SOO (No. 263, Fig. 34)

Location: Lat. 49° 19′ Long. 119° 29′ (82E/6W)
South side of Shuttleworth Creek, 4 miles east-southeast of Okanagan Falls.

Claims: SOO 3 to 8, 13 to 18.

Access: By logging-road up Irrigation Creek.

Operator: ACTION EXPLORATIONS LTD., 302, 550 Burrard Street, Vancouver 1.

Work Done: Fifteen line-miles of aeromagnetic survey flown.

Reference: Assessment Report No. 1971.

KEREMEOS

GOLCONDA (No. 305, Fig. 34)

Location: Lat. 49° 15.7′ Long. 119° 50.5′ (82E/5W)
Adjacent to Olalla on the west and south of Olalla Creek.

Claims: COPPER KING, VOIGHT, NORTH STAR, TROUT, ALMA 1 to 7.

Access: By road, 1½ miles from Olalla.

Operator: TRENT RESOURCES LTD., 227, 470 Granville Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: Underground workings mapped and 10 holes totalling 3,915 feet diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 221.

Description: Pyrite, chalcopyrite, molybdenite, and minor galena in veins in pyroxenite.

BOOT (No. 354, Fig. 34)

Location: Lat. 49° 14.1′ Long. 119° 43′ (82E/4E)
Two and one-half miles due north of Indian Reserve No. 6 at Cawston, on an eastern branch of Manuel Creek.

Claims: BOOT 1 to 4, PIP 31.

Access: By road, 4 miles from Fairview.

Owner: G. H. HADDRELL, Summerland.

Metals: Copper, silver, nickel.

Work Done: One hole 96 feet deep diamond drilled.

HORN SILVER MINE (No. 347, Fig. 34)

By David Smith

Location: Lat. 49° 03.4′ Long. 119° 41.3′ (82E/4E)
Sixteen miles south of Keremeos.

Claims: Two Crown-granted and 142 recorded mineral claims.

Access: Access to the mine plant at 2,622 feet elevation is by a 2½-mile road which leaves the Keremeos–Richter Pass highway at the foot of Richter Mountain.

Owner: UTICA MINES LTD., 904, 510 West Hastings Street, Vancouver 2; mine address, P.O. Box 47, Keremeos.

Metals: Silver, gold (*see* Table 12 for production).

Work Done: Development in the mine was as follows: Drifting, 5,541 feet; raising, 1,756 feet; underground diamond drilling, 14,270 feet. In 1969, 74,587 tons was milled. An exploration adit in the 2210 level was driven 188 feet. The main 2,300-volt cable supplying the equipment in underground workings was rerouted and extended along 2600 level. Lights and heating were installed in the lunchroom on this level. A small air compressor, ventilating fan, and lighting were installed on 2200 level. At the mill a standby lighting plant was installed.

References: *Minister of Mines, B.C.*, Ann. Repts., 1965, pp. 162, 163; 1966, p. 190; 1967, pp. 219–221; 1968, p. 221.

Description: Mining is carried out on three levels, at elevations 2,622, 2,570, and 2,422 feet. Ore is broken in sub-level stopes, scraped to loading chutes, transferred to the pass on the 2400 main haulage level, using 1-ton cars and battery locomotives. The ore is then trammed to surface and trucked on surface to the mill. No housing is provided, and employees commute from Osoyoos, a distance of 10 miles, and Keremeos, a distance of 14 miles.

OSOYOOS

PEN, AXE, JOE (No. 211, Fig. 34)

LOCATION: Lat. 49° 01′–04′ Long. 119° 35′–37′ (82E/4E)
Six miles northwest of Osoyoos.

CLAIMS: About 100 claims located as the PEN, PAL, AXE, HEN, OLD, JOE.

OWNER: MULTIPLE MINING LTD., 4316—53rd Street, Red Deer, Alta.

METAL: Copper.

WORK DONE: A magnetometer survey was made of an area 1 to 2½ miles west of Kilpoola Lake and 1 to 4 miles north of the International Boundary. A number of old showings are on the JOE claims.

REFERENCES: Assessment Reports Nos. 1228 and 2027.

VERNON MINING DIVISION

MABEL LAKE

BRIGHT STAR (No. 349, Fig. 34)

LOCATION: Lat. 50° 43.9′ Long. 118° 45′ (82L/10W)

CLAIMS: Total of 147 claims including the BST, STAR, LEN, and DEER claims, comprising the GOLDEN WEST, BRIGHT STAR TRIO, STAR, and BILL groups.

ACCESS: Via Mabel Lake road from Enderby, 27 miles.

OWNER: BRIGHT STAR TRIO MINING LTD., 3302—17th Street, Vernon.

METALS: Zinc, lead, copper, silver.

WORK DONE: A ground magnetometer survey covering 28 line-miles was run over the BRIGHT STAR TRIO, GOLDEN WEST, and STAR groups; 1,000 soil samples were collected from the same claims for chemical analysis; and 10 holes totalling 597 feet were diamond drilled from surface.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 222; Assessment Report No. 2169.

VERNON

DCK (No. 264, Fig. 34)

LOCATION: Lat. 50° 17′ Long. 119° 09′ (82L/6E)
At elevation of 4,000 feet on north slope of Vernon Hill, 4 miles east of Vernon.

CLAIMS: DCK 1 to 6, 20 to 61, 100, 101; X 1; ANNE 1 to 7; COPPER; GOLD; SILVER STREAK; WCR 1 to 7; DAKOTA; DENISE 1 to 10.

ACCESS: By road from Vernon.

OWNER: KING GRAYBARR MINES LTD., Box 904, Vernon.

METALS: Copper, gold, silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Aeromagnetic survey consisting of 36 line-miles flown over the property, geology of the SILVER STREAK and DCK mapped, 6,000 feet of trenches and 5,000 square feet of stripping bulldozed, 2 miles of road built, and five holes totalling 1,150 feet diamond drilled.

REFERENCE: Assessment Report No. 2000.

CHAPUT (No. 331, Fig. 34)

By David Smith

LOCATION: Lat. 50° 15.7′ Long. 118° 56.5′ (82L/7W)
On the east bank of Bessette Creek, 2 miles northeast of Lumby.

CLAIMS: CHAPUT 1 to 24.

ACCESS: By 1½ miles of good road from Highway No. 6 at Lumby.

Operator: F. K. EXPLORATIONS LTD., 10647 King George VI highway, North Surrey; field address, Box 399, Lumby.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: A third adit was started in 1969. A total of 650 feet of drift and sublevels was driven on a quartz vein carrying erratic ore values. Ore was cobbed and shipped by truck to the Trail smelter.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 222.

Description: A small mill consisting of a crusher, pulverizer, and a Wilfley table was constructed and was operated intermittently.

OKANAGAN LAKE

SPIKE (No. 262, Fig. 34)

Location: Lat. 49° 59′ Long. 119° 31′ (82E/13E)
West side of Okanagan Lake, 1 mile west of Wilson Landing, at elevation 3,000 feet.

Claims: SPIKE 1 to 10, known as TOWER GROUP (formerly the BLUE HAWK and associated claims).

Access: By logging-road from Wilson Landing.

Owner: DAWOOD MINES LIMITED, 410, 355 Burrard Street, Vancouver 1.

Metals: Gold, silver.

Work Done: Magnetometer and geochemical surveys were run over 11.27 miles of grid lines on the SPIKE claims.

References: *Minister of Mines, B.C.*, Ann. Repts., 1933, p. A 196; 1934, pp. A 24, D 34; 1935, p. D 13; 1938, p. D 36; 1967, p. 223; *Geol. Surv., Canada*, Paper 37-21, p. 23; Assessment Report No. 1894.

Description: Gold and silver occur in scattered veins of shattered, vitreous quartz in Cache Creek sediments and greenstones. Latter are intruded by dioritic rocks. Veins vary from few inches to few feet in width. Mineralization consists of pyrite, a little galena, and dark oxidation products. Assays of picked samples: 0.2 to 1 ounce per ton gold.

HUGAL, HUD (No. 279, Fig. 34)

Location: Lat. 50° 18′ Long. 119° 28′ (82L/6W)
On north side of Naswhito Creek, 2 miles above its junction with Okanagan Lake, about 9 miles west of Vernon.

Claims: HUGAL 1 to 20, HUD 1 to 22, formerly GOODENOUGH.

Access: By road from the west side road along Okanagan Lake.

Operator: HUDSON BAY EXPLORATION & DEVELOPMENT CO. LTD., 800, 505 Burrard Street, Vancouver 1.

Metal: Copper.

Work Done: Induced polarization survey, ground magnetometer survey, geological survey, geochemical soil sampling survey. Seven holes totalling 2,367 feet diamond drilled.

Reference: Assessment Report No. 2042.

WHITEROCKS MOUNTAIN

NIGHT OWL (No. 252, Fig. 34)

Location: Lat. 50° 01′ Long. 119° 45′ (82L/4E)
On west slopes of Whiterocks Mountain.

Claims: NIGHT OWL 1 to 70.

ACCESS: By road from Westbank, 25 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Copper, molybdenum.

WORK DONE: Geological mapping, ground magnetometer survey, and geochemical survey on NIGHT OWL 35, 36, 65, 66 claims; 1½ miles of road constructed; 13 holes, totalling 1,764 feet percussion drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 223.

BEAR (No. 252, Fig. 34)

LOCATION: Lat. 50° 00′ Long. 119° 48.6′ (82E/13W, 82L/4W)
About 2½ miles southwest of Whiterocks Mountain, around Islahts Lake.

CLAIMS: BEAR, ALFY, CHARLIE, POP, including 96 claims in all.

ACCESS: By road, 23 miles from Kelowna.

OPERATOR: ATLAS EXPLORATIONS LIMITED, 330, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Geological, ground magnetometer, and induced polarization surveys were made of the claims and 2 miles of road was constructed.

REFERENCE: Assessment Report No. 2255.

JUBILEE MOUNTAIN

BS, PANE, FERN (No. 246, Fig. 34)

LOCATION: Lat. 49° 56.9′ Long. 118° 48.3′ (82E/15W)
At 7,000 feet elevation on west and south slopes of Jubilee Mountain, 2 miles southeast of Graystoke Lake and 25 miles east of Kelowna.

CLAIMS: A total of 71 claims including BS 1 to 36, PANE 1 to 27, FERN 1 to 8.

ACCESS: By road, 35 miles from Kelowna.

OPERATOR: COPPER HILL MINING AND EXPLORATION CO. LTD., Box 506, Grand Forks.

METALS: Copper, molybdenum.

WORK DONE: The PANE and FERN claims were mapped geologically by D. Cox; 1,000 soil samples were collected from the PANE and FERN claims and 200 stream silt samples were collected from the whole group for geochemical analysis; two pits 5 feet deep were dug; 2 miles of road was built on the PANE claims; and four holes totalling 200 feet were diamond drilled.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 223.

DESCRIPTION: Chalcopyrite and molybdenum in quartz monzonite.

LIGHTNING PEAK

WATERLOO No. 3 (No. 291, Fig. 34)

LOCATION: Lat. 49° 52′–55′ Long. 118° 28′–35′ (82E/15E, 16W)
On north side of Lightning Peak, 20 miles due west of Needles.

CLAIMS: WATERLOO No. 3 (Lot 4815), THUNDER HILL (Lot 3413), FIRST CHANCE (Lot 3414), WEST FORK (Lot 3415), JIM HILL (Lot 3416), PEAK 1 to 203, DAY 1 to 4.

ACCESS: Via 18 miles of road which leaves Highway No. 6 near Monashee Pass.

OPERATOR: INTERNATIONAL MINE SERVICES LIMITED, 1601, 8 King Street East, Toronto, Ont.

METALS: Silver, lead, zinc.

Work Done: Payday and Waterloo surface workings mapped; Lightning Peak and Waterloo adits mapped; 445 soil samples collected on parts of PEAK 91 to 95, 74, and 76 claims for geochemical analysis; 16 holes totalling 5,885 feet diamond drilled on surface; and 16 holes totalling 1,736 feet diamond drilled underground.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 224; Assessment Report No. 1812.

GREENWOOD MINING DIVISION

BEAVERDELL

HIGHLAND BELL MINE (No. 329, Fig. 34)

Location: Lat. 49° 26.1′ Long. 119° 03.6′ (82E/6E)

The property is on the west slope of Mount Wallace, about 1 mile east of Beaverdell.

Claims: Fourteen recorded mineral claims and 32 Crown-granted mineral claims.

Access: The property is serviced by several roads from Beaverdell.

Owner: MASTODON-HIGHLAND BELL MINES LTD., 300, 999 West Pender Street, Vancouver 1; mine office, Beaverdell; B. Goetting, mine manager. In October, control of Highland Bell Mines Ltd. was acquired by Teck Corporation Ltd.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: The mine and mill worked continuously during the year and treated about 125 tons per day. Most of the production came from the lower workings with considerable ore being obtained from reactivated stopes.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 224.

Description: During recent years, the discovery of new ore in the mine has been exceeded by production and hence it has become necessary to reopen abandoned stopes and remove pillars and mine marginal ore. The character of the ore has changed with increased depth, and there are indications that the bottom of the ore structures has been reached.

RAMBLER (No. 352, Fig. 34)

By P. E. Olson

Location: Lat. 49° 25′ Long. 119° 03.5′ (82E/6E)

On the west slope of Mount Wallace, immediately south of the Highland Bell mine.

Claims: Nine recorded and Crown-granted mineral claims, including the RAMBLER Fraction (Lot 2797).

Access: Via the Wallace Mountain mining-road from Beaverdell.

Owner: Highland Silver Mines, Ltd.

Operator: AJAX MERCURY MINES LIMITED, 115, 815 West Hastings Street, Vancouver 1.

Metal: Silver.

Work Done: Geophysical prospecting and some underground diamond drilling in the old Rambler workings.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 224.

WELLINGTON (No. 355, Fig. 34)

Location: Lat. 49° 25.7′ Long. 119° 04.6′ (82E/6E)

On west side of Mount Wallace, 1 mile east of Beaverdell.

Claims: WELLINGTON (Lot 2621), BLACK DIAMOND (Lot 1095), and 25 other claims.

ACCESS: From Beaverdell by road.

OWNER: SILVER-LEE MINES LIMITED, 509, 602 West Hastings Street, Vancouver 2.

METALS: Silver, lead, zinc.

WORK DONE: Geology mapped, 56 miles of electromagnetic survey run, geochemical survey run, and three trenches totalling 100 feet bulldozed.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1947, p. 153 (*see* Silver Bounty Mines).

ROCCO PLATA, VAN (No. 341, Fig. 34)

LOCATION: Lat. 49° 25′ Long. 119° 02.5′ (82E/6E)
At 4,500 feet elevation on west slope of Mount Wallace, 3 miles east of Beaverdell.

CLAIMS: ROCCO PLATA 1 to 10, VAN 1 to 4.

ACCESS: Via Goat Peak lookout road from Beaverdell.

OPERATOR: RED ROCK MINES LTD., 202, 640 West Hastings Street, Vancouver 2.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report No. 1927.

ROB (No. 239, Fig. 34)

LOCATION: Lat. 49° 27.6′ Long. 118° 57.9′ (82E/7W)
On Crystal Butte, 5 miles northeast of Beaverdell.

CLAIMS: ROB 6 to 9.

ACCESS: From Beaverdell, 8 miles via Crystal Butte road.

OWNER: BURNEX EXPLORATION LTD., 4647 Burnaby 1.

METALS: Copper.

WORK DONE: Prospecting and road clearing.

FUKI (No. 265, Fig. 34)

By J. W. McCammon

LOCATION: 49° 32.4′ Long. 118° 52.9′ (82E/10W)
At 3,800 feet elevation, on west side of Dear Creek, 3¼ miles west of Christian Valley and 11 miles northeast of Beaverdell.

CLAIMS: FUKI 1 to 40 and DONAN 1 to 280.

ACCESS: By the forest-access road from Beaverdell to Christian Valley, 13.3 miles from the highway turn-off, 0.6 mile north of Beaverdell.

OWNER: Nissho-Iwai Canada Ltd., 1112, 409 Granville Street, Vancouver 2.

OPERATOR: POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION, 9–13, I-Chome, Akasaka, Minato-Ku, Tokyo, Japan.

METAL: Uranium.

WORK DONE: Geological survey, scintillometer survey, three diamond-drill holes.

REFERENCE: Assessment Report No. 2013.

DESCRIPTION:

One showing, the Fuki outcrop on the FUKI No. 1 claim was examined in June, 1969. It consists of an exposure about 35 feet long with a maximum height of 10 feet in a road cut on a by-pass around a small knoll, just south of the main access road. The radioactivity was discovered in August, 1968, by Messrs. Fukuoka and Kuroki, who were cruising the roads in the area with a car-borne scintillometer.

In the exposure, secondary radioactive mineralization, probably chiefly autunite, occurs as films on pebbles and in the matrix of a loosely consolidated conglomerate. The conglomerate is made up of rounded pebbles, mostly smaller than 3 inches in diameter but occasionally 6 inches to a foot in diameter, in a sandy-silty matrix. The pebbles are chiefly granitic, derived either from Valhalla or Coryell intrusions, with lesser volcanic varieties. A thin silty or shaly layer is interbedded with the conglomerate near the base of the exposure. It contains a small amount of carbonaceous matter. Overlying the conglomerate is fresh olivine basalt. In a drill-hole on top of the mound about 20 feet northeast of the face of the cut, 10 feet of basalt was found over 60 feet of conglomerate, which, in turn, overlay biotite andesite. The basalt is apparently Miocene (?) valley basalt and the conglomerate is part of the Paleocene or Eocene Phoenix (now Marron) Volcanic Group as shown by H. W. Little on Geological Survey of Canada Map 6-1967, Kettle River, East Half.

Examination with a C.A.E. Model 963 scintillometer gave readings of up to 10 times background on the conglomerate face. The maximum readings were just below the upper contact. One channel sample extending downwards 16 inches perpendicularly from the top of the conglomerate showed radioactivity equivalent to 0.10 per cent U_3O_8 on a laboratory scintillation counter. The operators report assays of as much as 0.12 per cent U_3O_8 across 5 feet at the top of the conglomerate.

A cut 100 to 125 feet north of the Fuki outcrop exposes a similar rock sequence for 150 feet along the main road. The scintillometer response, where tested at this showing, varied from two to three times background.

ROCK CREEK

RAY (No. 238, Fig. 34)

Location: Lat. 49° 00.9′ Long. 119° 10.8′ (82E/3E)
By Highway No. 3, 4 miles southwest of Bridesville.
Claims: RAY 1 to 28, MARIE 1 to 3, RITA 1 and 3.
Access: Highway No. 3.
Owner: RAYORE MINES LTD., 625, 925 West Georgia Street, Vancouver 1.
Metals: Nickel, copper.
Work Done: Two diamond-drill holes, aggregate depth 390 feet, drilled.
Reference: Assessment Report No. 1905.
Description: Pyrite, pyrrhotite, and chalcopyrite in serpentinized gabbro.

KETTLE RIVER

LOU (No. 353, Fig. 34)

Location: Lat. 49° 23.1′ Long. 118° 51.5′ (82E/7W)
East side of Kettle River, 1½ miles north of the mouth of Lost Horse Creek.
Claims: Thirteen LOU claims.
Access: By road, 25 miles from Rock Creek.
Owner: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.
Metal: Copper.
Work Done: One hole 307 feet long diamond drilled.

MIDWAY

G-TO (No. 247, Fig. 34)

Location: Lat. 49° 02′ Long. 118° 52′ (82E/2W)
On east side of Kettle River, 4 miles west of Midway.
Claims: G-TO 11 to 18, 20 to 38, G-TO Fraction; TEXAS; GRANADA.
Access: Highway from Midway.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METAL: Copper.

WORK DONE: Geological mapping and 493 soil samples collected for geochemical analysis.

REFERENCE: Assessment Report No. 2049.

DESCRIPTION: Chalcopyrite, pyrite, and magnetite in skarn.

MIDWAY (No. 330, Fig. 34)

By P. E. Olson

LOCATION: Lat. 49° 02.4′ Long. 118° 48.5′ (82E/2W)
About 2 miles north of Midway, at an elevation of 3,800 feet.

CLAIMS: NANCY No. 1 recorded claim includes old workings whose original names are not known.

ACCESS: Via 2½ miles of jeep road from Midway.

OWNER: D. MOORE, Midway.

METALS: Gold, silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Mainly underhand stoping from the surface.

DESCRIPTION: An irregular fracture along a contact between diorite and schistose rocks, which strikes northwesterly and dips steeply to the northeast, carries small lenses and veinlets of high-grade silver ore. One small shipment was made to the Trail smelter during the year. A crosscut tunnel, about 75 feet below the surface exposures, did not intersect the mineralized structure.

GREENWOOD

AMANDY (No. 201, Fig. 34)

LOCATION: Lat. 49° 11′ Long. 118° 37′ (82E/2E)
Northwest slope of Jewel Lake, 6 miles north of Greenwood.

CLAIMS: RODERICK DHU (Lot 598), AMANDY (Lot 2795), ALICE (Lot 698), LADY OF THE LAKE (Lot 1171), and eight recorded claims between these claims and Jewel Lake.

OWNER: J. A. MILLICAN, Grand Forks.

METALS: Gold, silver, lead.

WORK DONE: A photogeological map and field examination of an area 15 miles east to west and 20 miles north to south on the southern slopes of Mount Roderick Dhu.

REFERENCE: Assessment Report No. 1814.

LINDA, BG (No. 202, Fig. 34)

LOCATION: Lat. 49° 09′ Long. 118° 30′ (82E/2E)
Two miles east of Eholt along Rathmullen Creek, mainly south of the Kettle Valley railway.

CLAIMS: LINDA, ALVIN, and the BG 1 to 6 and 4-SHUR 1 to 13 known as the PACKRAT group.

OWNER: MRS. R. E. HOEHN, Grand Forks.

METAL: Copper.

WORK DONE: Geochemical soil sampling of an area about 1 mile square; 481 soil samples were taken and analysed for copper, nickel, and zinc.

REFERENCE: Assessment Report No. 1960.

COMBINATION (No. 332, Fig. 34)

By P. E. Olson

LOCATION: Lat. 49° 07.3′ Long. 118° 40.1′ (82E/2E)
The property is immediately north of the Greenwood–Grand Forks highway, and one-quarter mile east of the Jewel Lake turnoff.

CLAIMS: COMBINATION Crown-granted claim (Lot 1458).

ACCESS: Via a short mining-road from the Greenwood–Grand Forks highway.

OWNER: E. D. CAMPBELL, Greenwood.

METALS: Silver, lead.

WORK DONE: Chiefly surface preparation and clearing of portal.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1938, p. D 39.

DESCRIPTION: A narrow high-grade vein has been explored by a crosscut about 200 feet long and about 100 feet of drifting. Some stoping has been done above and below the drift. Very little mineralization is visible at the present time.

MARSHALL (No. 334, Fig. 34)

By P. E. Olson

LOCATION: Lat. 49° 06.7′ Long. 118° 36.2′ (82E/2E)
At the head of Providence Creek, north of Providence Lake, 3½ miles northeast of Greenwood.

CLAIMS: About 30 Crown-granted and recorded claims, including the MARSHALL (Lot 2388).

ACCESS: The Greenwood–Phoenix road crosses the property.

OWNER: SAN JACINTO EXPLORATIONS LIMITED, 2, 515 Granville Street, Vancouver 2.

METALS: Copper, gold.

WORK DONE: Several diamond-drill holes were put down on the MARSHALL claim in the vicinity of the Phoenix reservoir. No significant mineralization was found.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 232.

DESCRIPTION: The MARSHALL appears to lie along the belt of mineralization which includes the Old Ironsides, Brooklyn, and Stemwinder deposits.

PHOENIX MINE (No. 334, Fig. 34)

By P. E. Olson

LOCATION: Lat. 49° 05.8′ Long. 118° 35.9′ (82E/2E)
About 3½ miles east of Greenwood, covering the old town of Phoenix.

CLAIMS: The company owns 230 recorded and Crown-granted claims. Main open pit workings are on the OLD IRONSIDES Crown-grant (Lot 589).

ACCESS: Good roads provide access from Greenwood and from the Grand Forks–Greenwood highway.

OWNER: THE GRANBY MINING COMPANY LIMITED, Phoenix Copper Division, P.O. Box 490, Grand Forks.

METALS: Copper, gold, silver (*see* Table 12 for production).

WORK DONE: The mine worked continuously during the year treating about 2,000 tons daily until October when the mill capacity was increased to 2,500 tons per day. A new power-line was built to supply the pump motors at a pumping station below Twin Creek dam. Switchgear and cable were installed for a new submersible pump in the pit. Motors, wiring, and switchgear were installed for a ball-mill, pump, and flotation cells. This equipment adds 400 horsepower to the connected load.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 231, 232.

DESCRIPTION: All production came from the Old Ironsides pit and included mill feed as well as marginal material. The latter is stockpiled for eventual milling if metal prices warrant this. At present there is sufficient marginal material at the property to keep the mill operating at full capacity for several years.

ORO DENORO (No. 206, Fig. 34)

By P. E. Olson

LOCATION: Lat. 49° 07.6′ Long. 118° 32.9′ (82E/2E)
The principal ore showings are immediately west of the Grand Forks–Greenwood highway, about 1½ miles north of the Phoenix turnoff.

CLAIMS: ORO DENORO (Lot 692), EMMA (Lot 591), and 32 other adjoining Crown-granted and recorded mineral claims.

ACCESS: By mining-roads and old railway grades from the Grand Forks–Greenwood highway.

OWNER: W. E. McArthur.

OPERATOR: WEST COAST RESOURCES LTD., 104, 569 Howe Street, Vancouver 1; W. E. McArthur, superintendent.

METAL: Copper.

WORK DONE: Work was limited to diamond drilling on the EMMA where copper mineralization is known to occur.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 233–235.

DESCRIPTION: Preparations to install a 1,000-ton mill on the ORO DENORO were abandoned early in the year, and diamond drilling with a view to increasing indicated ore reserves was resumed. Some of the ore indicated by diamond drilling may not be available to open-pit mining methods.

STAN, ROCKLAND (No. 206, Fig. 34)

LOCATION: Lat. 49° 07′ Long. 118° 34′ (82E/2E)
About 5 miles northeast of Greenwood, immediately east of Glenside Creek, and 1 mile south of Highway No. 3.

CLAIMS: STAN and about 50 located claims and Crown-grants including the ROCKLAND (Lot 1493).

OWNER: KING RESOURCES COMPANY, 1300 Elveden House, Calgary 2, Alta.

METALS: Copper, molybdenum.

WORK DONE: Preliminary soil-sampling survey of an area about three-quarters of a mile from east to west and one-quarter mile north to south and a magnetometer survey of an area 1 mile by 2 miles.

REFERENCES: Assessment Reports Nos. 1162, 1816, and 2113.

SKYLARK, LAST CHANCE (No. 208, Fig. 34)

LOCATION: Lat. 49° 05′ Long. 118° 38′ (82E/2E)
One mile east of Greenwood on and south of the road to Phoenix.

CLAIMS: SKYLARK (Lot 763), LAST CHANCE (Lot 753), and 10 adjacent Crown-granted claims comprising Mineral Lease M-277.

OPERATOR: SARCO INVESTMENTS LTD., 702, 475 Howe Street, Vancouver 1.

WORK DONE: Photogeological interpretation, magnetometer survey, and bulldozer trenching. The magnetometer survey was of an area near the old SKYLARK vein. Work was under the direction of H. H. Shear, consulting geologist.

REFERENCE: Assessment Report No. 1819.

MOTHER LODE, GREYHOUND (No. 333, Fig. 34)

By P. E. Olson

Location: Lat. 49° 06.4′ Long. 118° 42.5′ (82E/2E)
North of Deadwood Creek, about 2 miles west of Greenwood.

Claims: Forty-five mineral claims, including the MOTHER LODE (Lot 704) and the GREYHOUND (Lot 1014).

Access: Good mining-road from Greenwood along Deadwood Creek.

Owner: AABRO MINING & OILS LTD., 204, 569 Howe Street, Vancouver 1; mine office, Greenwood.

Metals: Copper, gold, silver.

Work Done: Mill construction on the site of the Woodgreen mill, near the Mother Lode pit, was 90 per-cent complete by year end. The Greyhound pit was stripped of overburden in readiness for production.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 228–230; Assessment Report No. 2217.

Description: On the GREYHOUND, indicated ore reserves which are amenable to open-pit mining are in the order of 750,000 tons grading just under 1 per cent copper with minor values in gold and silver. These reserves are sufficient to supply the Aabro mill for about three years.

BUTCHER BOY (No. 244, Fig. 34)

Location: Lat. 49° 07′ Long. 118° 43′ (82E/2E)

Claims: LOST, TOP, BUTCHER BOY, SAM, GJ, STANDARD, totalling 28 claims named the DEADWOOD RIDGE group.

Access: From Greenwood, 4½ miles by road.

Operator: OCCATILLA EXPLORATION CO. LTD., Box 506, Grand Forks.

Metals: Copper, silver, gold.

Work Done: Claims were surveyed; geology was mapped on LOST and TOP claims by D. Cox; 200 samples were collected for geochemical analysis; 2 miles of road was built on TOP and GJ claims; five holes totalling 2,000 feet were diamond drilled.

Reference: Assessment Report No. 1784.

Description: Chalcopyrite disseminated in skarn.

TAM O SHANTER (No. 203, Fig. 34)

Location: Lat. 49° 04′–08′ Long. 118° 43′–45′ (82E/2W)
Two miles west of Greenwood.

Claims: TAM O SHANTER (Lot 2405) is central in a group of about 40 Crown-granted claims held under mineral lease.

Owners: CROWNEX INTERNATIONAL LTD., 806, 1177 West Hastings Street, Vancouver 1, and SILVER DOME MINES LIMITED, 511, 602 West Hastings Street, Vancouver 2.

Metal: Copper.

Work Done: Aeromagnetic map of an area 4 miles north to south and 3 miles east to west centred about 2 miles west of Greenwood using a fixed-wing aircraft and an average ground clearance of 450 feet.

References: Assessment Report No. 1878; *Geol. Surv., Canada*, Paper 67-42; *Minister of Mines, B.C.*, Ann. Rept., 1923, p. 176.

CROESUS, JOHANNESBURG (No. 205, Fig. 34)

Location: Lat. 49° 04′ Long. 118° 39′ (82E/2E)
About 3 miles southeast of Greenwood.

Claims: CROESUS (Lot 866), JOHANNESBURG (Lot 2072), LEXICON (Lot 3303), TANGLEFOOT (Lot 1215), EHOLT (Lot 823), and about 20 located claims mainly north of these Crown-granted claims.

Owner: ORTEGA MINERALS LTD., 615, 850 West Hastings Street, Vancouver 1.

Work Done: Induced polarization survey (about 40 line-miles) in the area between Lind and Porter Creeks, one-half to 2 miles east of Highway No. 3; also a magnetometer survey.

References: Assessment Reports Nos. 1648, 1887, and 2054.

COLLEEN (No. 242, Fig. 34)

Location: Lat. 49° 03.5′ Long. 118° 35.6′ (82E/2E)
About three-quarters of a mile south of Wellington Camp, 4½ miles southeast of Greenwood.

Claims: WREN, SIBLEY, COLLEEN, totalling 12 claims.

Access: By road from Greenwood.

Operator: RAYORE MINES LTD., 625, 925 West Georgia Street, Vancouver 1.

Metal: Copper.

Work Done: Geology of claims mapped by G. C. Singhai and three holes totalling 849 feet diamond drilled.

Reference: Assessment Report No. 1618.

No. 7 (No. 321, Fig. 34)

Location: Lat. 49° 01.8′ Long. 118° 38.2′ (82E/2E)
At Central Camp, 2¾ miles southeast of Boundary Falls.

Claims: No. 7 (SEVEN) 1 to 8.

Access: By road, 4 miles from Boundary Falls.

Operator: McARTHUR AND SON, P.O. Box 258, Greenwood.

Metals: Gold, silver.

Work Done: Two holes totalling 653 feet diamond drilled on surface.

References: *Minister of Mines, B.C.*, Ann. Repts, 1941, p. 61, and previous years.

Description: Galena, sphalerite, and pyrite in quartz veins in schist and argillite.

LEXINGTON (No. 241, Fig. 34)

Location: Lat. 49° 01′ Long. 118° 38′ (82E/2E)
On Goosmus Creek and extending in a line from Boundary Falls southeast across Rusty Mountain to International Boundary. The property includes area referred to as the Central Camp.

Claims: LEXINGTON (Lot 645), CORNUCOPIA, BLACK JACK, EXCELSIOR, LEX 1 to 68, and others, totalling 96 claims in all (formerly known as King Midas Mines Ltd.).

Access: Gravel road leaves the Grand Forks–Greenwood highway at the junction of July and May Creeks.

Owner: LEXINGTON MINES LTD., P.O. Box 9, Greenwood.

METALS: Copper, gold, silver.

WORK DONE: Peripheral survey of Crown grants; survey of surface workings and Lexington adit; geological survey of Crown grants; silt, soil, and magnetometer survey of Crown grants; 14 trenches, totalling 14 miles in length bulldozed; City of Paris-Lexington adit rehabilitated; 18 holes totalling 8,000 feet diamond drilled, mostly on the LEXINGTON.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 69; Assessment Report No. 1775.

DESCRIPTION: Chalcopyrite, pyrite, sphalerite, galena, magnetite, and pyrrhotite in shear zone and serpentine in dacite.

GRAND FORKS

BVPK, CV (No. 248, Fig. 34)

LOCATION: Lat. 49° 03′ Long. 118° 34′ (82E/2E)

At 4,600 feet elevation, between Skeff Creek and May Creek, about 1¾ miles east of Attwood Mountain.

CLAIMS: BVPK, CV claims, 34 in all.

ACCESS: From Grand Forks by road, 6 miles.

OPERATOR: CONSUL MINES LTD., P.O. Box 506, Grand Forks.

METALS: Copper, molybdenum, gold, silver.

WORK DONE: Under the direction of D. Cox the geology of the claims was mapped, 876 soil and stream silt samples were collected for analysis, three trenches totalling 200 feet in length were bulldozed in overburden, 10 pits 5 feet deep were dug, and three trenches totalling 200 feet in length were excavated in bedrock.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 235.

DESCRIPTION: Replacement in skarn.

BULLER (No. 204, Fig. 34)

LOCATION: Lat. 49° 03′ Long. 118° 31′ (82E/2E)

Three miles northwest of Grand Forks.

CLAIMS: BULLER (Lot 3242), DENVER (Lot 2169), CRESSANT (Lot 3383), CONNECTION (Lot 954), THE LAYOVER (Lot 434), and about 30 adjacent located claims.

OPERATOR: THE GRANBY MINING COMPANY LIMITED, Phoenix Copper Division, P.O. Box 490, Grand Forks.

WORK DONE: Magnetometer survey of the southern slopes of Eagle Mountain in an area 1 mile north to south, extending 2 miles east from Highway No. 3.

REFERENCES: Assessment Report No. 1889; *Minister of Mines, B.C.*, Ann. Repts., 1901, p. 1,065; 1906, p. 161.

SEATTLE (No. 267, Fig. 34)

LOCATION: Lat. 49° 08′ Long. 118° 28′ (82E/1W)

On west side of north fork of Granby River, 8 miles north of Grand Forks.

CLAIMS: SEATTLE (Lot 652), VIRGINIA CITY (Lot 1606), IKE 1 to 25, LOYAL CANADIAN (Lot 1608), No. 1 (Lot 1362), BUNKER HILL (Lot 1609).

ACCESS: By road, 8 miles from Grand Forks.

Operator: RYSLO SILVER MINES LTD., 534, 789 West Pender Street, Vancouver 1.

Metal: Copper.

Work Done: Geological, magnetometer, and geochemical surveys were made by J. Sullivan on the VIRGINIA CITY, SEATTLE, and IKE 1 to 6 claims.

Reference: Assessment Report No. 2073.

Description: Pyrite, magnetite, and chalcopyrite in skarn near dioritic intrusion into limestone and limy grit.

COPPER No. 2 (No. 207, Fig. 34)

Location: Lat. 49° 32′ Long. 118° 21′ (82E/9W)
Forty miles north of Grand Forks on both sides of Burrell Creek, about 1 mile south of the mouth of Franklin Creek.

Claims: BEAR, DOE, 10 contiguous claims covering ground for about 1 mile southeast from the old Franklin townsite, probably including the old Copper No. 2 workings.

Operator: NEWMONT MINING CORPORATION OF CANADA LIMITED, 604, 744 West Hastings Street, Vancouver 1.

Work Done: Geological mapping and examination of old showings.

References: Assessment Report No. 1845; *Geol. Surv., Canada,* Mem. 56, 1915; *Minister of Mines, B.C.,* Ann. Repts., 1923, p. 179; 1929, p. 254.

Description: Chalcopyrite and molybdenite are present in fractures and as disseminated grains in granodiorite.

IXL (No. 335, Fig. 34)

By P. E. Olson

Location: Lat. 49° 32.9′ Long. 118° 24.3′ (82E/9W)
On the north slope of McKinley Mountain at 3,500 feet elevation, about 45 miles north of Grand Forks.

Claims: IXL 1 to 6.

Access: Via mining-road along the Granby River from Grand Forks.

Owner: Boundary Exploration Limited.

Operator: NEWMONT MINING CORPORATION OF CANADA LIMITED, 604, 744 West Hastings Street, Vancouver 1.

Metals: Gold, silver, copper.

Work Done: Geochemical and geophysical prospecting, followed by bulldozer stripping and diamond drilling.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1965, pp. 172, 173.

Description: One bulldozer cut disclosed about 70 feet of copper mineralization grading about 0.55 per cent copper, but subsequent diamond drilling failed to demonstrate any continuity to the copper zone. The copper zone was in an area of fairly intense pyrite mineralization several acres in extent. At year-end, Newmont Mining Corporation of Canada Limited moved its exploration equipment to another site in the Franklin Camp.

CHRISTINA LAKE

MT. VIEW, PEER (No. 245, Fig. 34)

Location: Lat. 49° 11′ Long. 118° 09′ (82E/1E)

Claims: MT. VIEW 1 to 19, PEER.

Access: By road, 16 miles from Christina Lake.

Owner: ROVER MINES LTD., 837 West Hastings Street, Vancouver 1.

Metals: Silver, lead, zinc, gold.

Work Done: Airborne magnetometer, electromagnetic, and radioactivity surveys of all claims totalling 34 line-miles, by H. Cohen. Two miles of road also constructed.

Reference: Assessment Report No. 1920.

Description: Vein in limestone.

AJAX, BURNT BASIN (No. 243, Fig. 34)

By P. E. Olson

Location: Lat. 49° 10′ Long. 118° 07′ (82E/1E)
At 4,200 feet elevation, 1 mile southwest of Paulson bridge, on Christina Lake–Kinnaird highway.

Claims: AJAX (Lot 1509), BURNT BASIN (Lot 1136), CHRISTINA 1 to 6, BP 1 to 3, and others, totalling 35.

Access: By road from Paulson, 2½ miles.

Owner: DALEX MINES LTD., 8, 515 Granville Street, Vancouver 2.

Metals: Copper, lead, zinc, gold, silver, platinum, palladium, cadmium.

Work Done: Geology of the BP 1 to 3, EVA BELL, JENNY LIND, HALIFAX, and HAVANNA claims was mapped by James McLeod; 720 soil samples were collected for analysis; seven trenches totalling 6,100 feet in length were bulldozed; 3 acres was stripped by bulldozer; 2 miles of road was built; and seven holes totalling 2,142 feet were diamond drilled.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 236; Assessment Report No. 1920.

HERB (No. 200, Fig. 34)

Location: Lat. 49° 08′–10′ Long. 118° 09′–13′ (82E/1E)
Two miles east of Christina Lake, between Texas Creek and Highway No. 3.

Claims: Sixty-four contiguous claims known as HERB, MOLY, GARNET, RUBY, and JACK.

Owner: BRYCON EXPLORATIONS LTD., 404, 509 Richards Street, Vancouver 2.

Metals: Copper, molybdenum.

Work Done: An airborne magnetometer survey (about 54 line-miles) was made across about 4 miles of the ridge between Texas and McRae Creeks using fixed-wing aircraft, a 600-foot line spacing, and an average ground clearance of about 450 feet.

Reference: Assessment Report No. 1811.

MASTODON (No. 304, Fig. 34)

By P. E. Olson

Location: Lat. 49° 00.5′ Long. 118° 10.3′ (82E/1E)
On Mastodon Creek, by power-line, 2 miles southeast of Cascade.

Claims: MASTODON (Lot 2384) and other Crown-granted mineral claims together with recorded claims, totalling about 100.

Access: Via the Cascade highway which cuts across the property.

Operator: HUNTER POINT EXPLORATION LTD., 470 Granville Street, Vancouver 2.

Metals: Nickel, chromium.

Work Done: One thousand feet of diamond drilling was done mainly on the MASTODON.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 236.

Description: Large body of serpentinized dunite contains nickel.

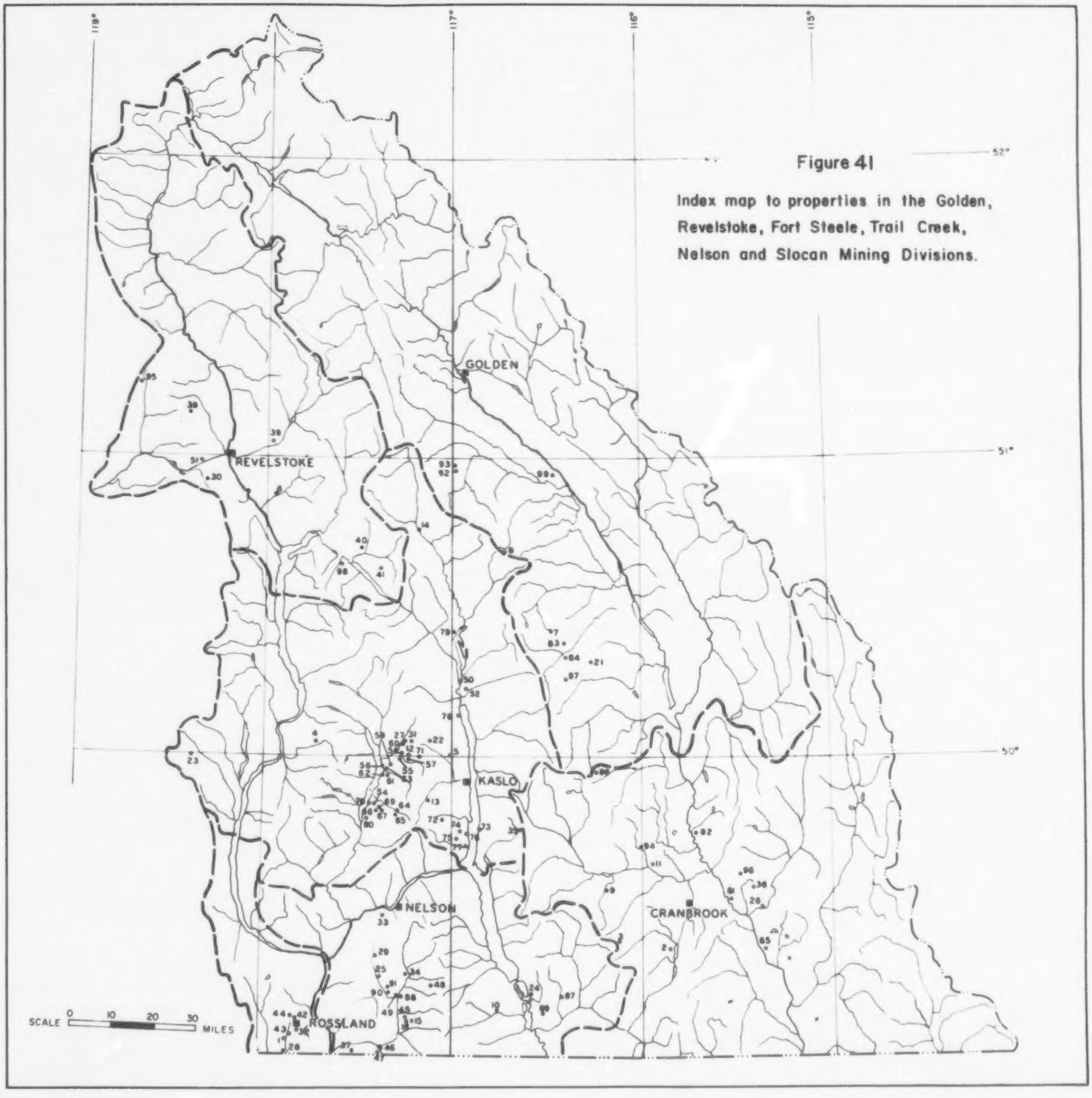

118°
117°
116°
115°
52°
51°
50°
GOLDEN
REVELSTOKE
KASLO
NELSON
CRANBROOK
ROSSLAND
SCALE 0 10 20 30 MILES

Figure 41

Index map to properties in the Golden, Revelstoke, Fort Steele, Trail Creek, Nelson and Slocan Mining Divisions.

KEY TO PROPERTIES ON INDEX MAP, FIGURE 41

1 RICH, MEL, KAY, ELI, page 315.
2 DAISY, page 346.
3 CARIBOO, page 347.
4 MILLIE MACK, page 323.
5 HECLA, page 332.
6 WIGWAM, page 339.
7 COPPER KING, IMPERIAL, page 343.
8 SILVER BASIN, page 342.
9 WARHORSE, page 346.
10 TOPAZ, page 321.
11 KIM, page 346.
12 WASHINGTON, page 330.
13 ANDEX, page 333.
14 FARSIDE, page 336.
15 OTTER, page 320.
16 JERSEY MINE, page 319.
21 YORNOC, page 344.
22 KAT, page 332.
23 DIXIE, page 323.
24 LIZ B, page 322.
25 HATTIE, page 318.
26 BIG BONANZA, page 348.
27 JO JO, page 330.
28 SUNSET, page 316.
29 RAND, page 319.
30 NIN, page 339.
31 PANAMA, page 331.
32 BLUEBIRD, PHOENIX, page 315.
33 EUREKA, page 316.
34 FRESNO, FRESNU, page 316.
35 HUMBOLT, page 337.
36 DIBBLE, page 348.
37 BAR, page 321.
38 MOUNT COPELAND MINE (KNOX), page 338.
39 STANNITE, page 339.
40 TRUE FISSURE, page 341.
41 SILVER CUP, page 341.
42 LE ROI, NICKEL PLATE, page 314.
43 MIDNIGHT, page 314.
44 COXEY MINE, page 314.
45 INVINCIBLE, page 319.
46 REEVES MACDONALD, page 320.
47 ANNEX, page 320.
48 HOWARD, page 316.
49 SILVER DOLLAR, page 317.
50 EASY M, page 335.
BRUCE, page 335.
51 VICTOR, page 338.
52 FOG, page 336.
54 COLORADO, page 325.
55 SILMONAC (MINNIEHAHA), page 328.
VICTOR, page 328.
CONDUCTOR, page 329.
56 BOSUN, page 327.
57 SLOCAN SOVEREIGN, page 329.
RECO, BLUEBIRD, page 329.
MADISON, page 329.
58 ANTOINE, page 331.
59 SILVER BELL, page 327.
LEI, page 328.
60 McALLISTER, page 330.
61 HEWITT, page 326.
62 FREDDY, page 326.
GALENA FARM, page 326.
63 STANDARD, page 327.
64 WESTMONT, page 326.
65 ENTERPRISE, page 325.
66 OTTAWA, page 324.
67 ARLINGTON, page 324.
69 LITTLE TIM, page 324.
70 HOMESTAKE, page 325.
71 COWBOY, TEXAS, FOURTH OF JULY, page 331.
DUBLIN QUEEN, page 332.
72 SCRANTON, page 333.
73 BLUEBELL MINE, page 337.
74 SILVER HOARD, page 333.
75 SKYLINE, page 334.
76 GREENACRES, page 334.
77 BELL AIRE, page 334.
78 MOONSHINE, page 335.
79 PRESIDENT, HAUSER, page 336.
80 PORT HOPE, page 323.
81 ALKI, page 348.
82 PRE, page 344.
83 RAD, page 343.
84 MELODY, page 343.
85 JAF, page 348.
86 MOLLY, page 344.
87 LEADVILLE, page 322.
88 CURLETT, page 317.
89 OTTO SILVER, page 322.
90 NEW ARLINGTON, page 318.
91 TRIXIE V, page 318.
92 ADR, page 342.
93 RUTH VERMONT, page 342.
94 SULLIVAN MINE, page 345.
95 RIP, page 337.
96 VICTOR, page 347.
97 DUTCHY, page 344.
98 LB (LUCKY BOY), page 340.
99 ATLANTA, HORSESHOE, MOUNTAIN DAISEY, page 341.

TRAIL CREEK MINING DIVISION

ROSSLAND

COXEY MINE (No. 44, Fig. 41)

LOCATION: Lat. 49° 05.3′ Long. 117° 49.6′ (82F/4W)
On the west slope of Red Mountain, about 2 miles west of Rossland.

CLAIMS: Eighteen mineral claims and two mineral leases. Production has come from open pits on the COXEY Crown-granted claim (Lot 1221).

ACCESS: Via a good road which leaves the Cascade highway about 1 mile west of Rossland.

OWNER: RED MOUNTAIN MINES LIMITED, 1600, 100 Adelaide Street West, Toronto, Ont.; mine office, Box 849, Rossland; mine manager, B. C. Fillingham.

METAL: Molybdenum (*see* Table 12 for production).

WORK DONE: Mining and milling were continuous during the year. Considerable diamond drilling was done and ore reserves were increased considerably. The milling rate was held at about 600 tons per day.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1967, pp. 236–238; 1968, p. 237.

DESCRIPTION: Orebodies, grading around seven pounds per ton molybdenum, lie at or near the surface of slopes of Red Mountain, thus permitting open-pit operations with only minor waste removal.

LE ROI, NICKEL PLATE (No. 42, Fig. 41)

LOCATION: Lat. 49° 05′ Long. 117° 48.5′ (82F/4W)
The property straddles Rossland and current underground work is under the city of Rossland.

CLAIMS: The property consists of about 70 Crown-granted and recorded mineral claims, including the LE ROI (Lot 240), WAR EAGLE (Lot 690), and NICKEL PLATE (Lot 637) Crown-grants.

ACCESS: The workings are mainly within the confines of Rossland.

OWNER: FALAISE LAKE MINES LTD., 625, 925 West Georgia Street, Vancouver 1; mine office, 2128 Columbia Avenue, Rossland.

METALS: Gold, silver, copper.

WORK DONE: About 1,700 feet of drifting and a small amount of diamond drilling. The drift was continued at year end with a view to intersecting the old LE ROI workings in 1970.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 236.

DESCRIPTION: In late May an adit was started at an elevation of 3,050 feet above sea level on the north edge of the GOLDEN HORN Crown-grant (Lot 1234). This adit is directed toward the 800 level crosscut on the LE ROI workings, a distance of about 4,000 feet. It will cut the Spitzee and Pack Train veins before reaching the LE ROI.

MIDNIGHT (No. 43, Fig. 41)

LOCATION: Lat. 49° 04.5′ Long. 117° 50′ (82F/4W)
Two miles west of Rossland.

CLAIMS: The MIDNIGHT Crown-granted mineral claim (Lot 1186) and 12 recorded mineral claims adjoining it.

Access: Via 1½ miles of good road which leaves the Cascade highway one-half mile from the Rossland junction.

Owner: Tull Mines Ltd.

Operator: CINOLA MINES LTD., 1322, 510 West Hastings Street, Vancouver 2.

Metals: Gold, silver, lead, zinc.

Work Done: Construction of a 100-tons-per-day mill, which was started late in 1968, was continued in early 1969. This work was halted before construction was half completed.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 236, 237.

Description: There are areas of nickel-bearing serpentine on the company holdings. The company proposed to mill some of the serpentine to test the recovery potential of the nickel in these rocks.

RICH, MEL, KAY, ELI (No. 1, Fig. 41)

Location: Lat. 49° 01′–07′ Long. 117° 46′–53′ (82F/4W)

Claims: About 110 located claims and Crown-granted claims held as mineral leases including COPPER GLANCE (Lot 1496), DELAWARE No. 2 (Lot 1225), VIKING (Lot 4916), POOR PROPERTY (Lot 1273), BIG CHIEF (Lot 1456), NORTH STAR (Lot 797), ZILOR (Lot 1051), MOCKING BIRD (Lot 1766), in two groups, one southwest of Rossland and the other 2 miles north and northwest of Rossland.

Owners: MICHAEL DELICH and SALEM MINES LTD., 534, 789 West Pender Street, Vancouver 1.

Work Done: (1) Magnetometer survey on the RICH, DOLLAR, and CHIEF claims on the eastern slope of Ivanhoe Ridge and on the ELI claims east of Little Sheep Creek between 1 and 5 miles south and southwest of Rossland. (2) Geochemical soil sampling on the ELI claims in an area east of Little Sheep Creek about 3 miles southwest of Rossland. (3) Magnetometer survey on selected lines on the KAY, MEL, JOEY, and LUCKY claims in an area extending eastward from Record Mountain into upper Topping Creek. A. R. Bullis supervised the work.

References: Assessment Reports Nos. 1903A, 1903B, and 2045.

BLUEBIRD, PHOENIX (No. 32, Fig. 41)

Location: Lat. 49° 03.5′ Long. 117° 47.6′ (82F/4W)
Immediately south of Rossland.

Claims: Forty-seven Crown-granted claims including BLUEBIRD (Lot 1053), MAY FLOWER (Lot 1274), and PHOENIX (Lot 953).

Access: By road from Rossland.

Owner: ROSSLAND MINING CO. LTD., 1030 West Georgia Street, Vancouver 5.

Metals: Gold, silver, lead, zinc.

Work Done: Geological mapping and 1,500 feet of surface diamond drilling in 16 holes on BLUEBIRD and PHOENIX claims under the direction of A. C. Skerl and F. C. Buckland.

References: *Minister of Mines, B.C.*, Ann. Repts., 1949, pp. 157–163; 1968, p. 237.

SUNSET (No. 28, Fig. 41)

Location: Lat. 49° 00′ Long. 117° 50′ (82F/4W)
About 1 mile west of Patterson.

Claims: SUNSET (Lot 6563), SUNSET, UTICA, LYNN, totalling 24 claims.

Operator: LAKE KOZAK MINES LIMITED, c/o 826, 159 Bay Street, Toronto, Ont.

Metals: Silver, lead, zinc.

Work Done: Geological mapping and examination of core drilled by Utica Mines Ltd. in 1963.

References: *Minister of Mines, B.C.*, Ann. Rept., 1952, p. 143; Assessment Report No. 2161.

NELSON MINING DIVISION

NELSON

EUREKA (No. 33, Fig. 41)

Location: Lat. 49° 27.5′ Long. 117° 22′ (82F/6W)
Five miles southwest of Nelson.

Claims: Twenty-five Crown-granted claims including EUREKA (Lot 5552), STAR (Lot 3687), and ALMA N (Lot 9174).

Access: By road from Taghum, a distance of 3 miles.

Operator: COPPER RIDGE MINES LTD., 1710, 1177 West Hastings Street, Vancouver 1.

Metals: Gold, silver, copper.

Work Done: Surface diamond drilling of two holes totalling 1,000 feet and geological and geophysical surveys of parts of three claims.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 78.

YMIR

FRESNO, FRESNU (No. 34, Fig. 41)

Location: Lat. 49° 16′ Long. 117° 14′ (82F/6E)
The claims cover an area about 5 miles square, immediately west of Ymir.

Claims: About 100 claims named FRESNO and FRESNU.

Access: By truck road from Ymir.

Operator: COPPER HORN MINING LTD., P.O. Box 548, Penticton; R. Joy, president.

Metals: Molybdenum, gold, silver.

Work Done: Bulldozer trenching and 1½ miles of road construction along Boulder Mill Creek.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 243; 1968, p. 240.

HOWARD (No. 48, Fig. 41)

By P. E. Olson

Location: Lat. 49° 14.2′ Long. 117° 06.5′ (82F/3E)
On the east side of Active Creek, a tributary of Porcupine Creek, at elevations of 5,500 to 5,800 feet.

Claims: Eight Crown-granted mineral claims, including the HOWARD (Lot 12540).

Access: By mining-roads along Porcupine and Active Creeks, a distance of 7 miles from the Ymir–Salmo highway.

Owner: Mrs. J. Craft, Nelson.

Operators: JOHN STOOCHNOFF and J. HUTTON, of Salmo, and GEORGE WINDSOR, of Spokane, Washington.

Metals: Gold, silver, lead, zinc.

Work Done: Roads to the mine were improved and mine portals were retimbered. A small mill was erected near the mouth of Porcupine Creek and a few tons of ore was milled to produce a few barrels of concentrate.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 241.

Description:

The Howard mine was developed by two main levels which gave access to a zone of heavy sulphides which was mined out about 40 years ago. Samples were taken from the stoped area and these appear to give the approximate value of small remnants of ore left in the extremities of the stoped area.

Sample No. 1 was taken from narrow mineralized sections of pillars left in the stoped out areas. Sample No. 2 was taken from thin sulphide strips left on the footwall of the stoped area. Sample No. 3 was taken from the hangingwall of the stoped area where little sulphide material could be found.

Sample	Gold	Silver	Lead	Zinc
	Oz. per Ton	Oz. per Ton	Per Cent	Per Cent
1	0.02	0.5	0.38	1.72
2	0.22	2.8	5.86	7.50
3	0.02	0.7	1.27	0.30

SALMO

SILVER DOLLAR (No. 49, Fig. 41)

By P. E. Olson

Location: Lat. 49° 14.6′ Long. 117° 19.4′ (82F/3W)
The Silver Dollar mine is adjacent to the Great Northern Railway, immediately west of Salmo.

Claims: SILVER DOLLAR (Lot 12599), LUCKY BOY (Lot 12600), and eight other adjoining claims.

Access: Via one-half mile of truck-road which leaves the Salmo–Trail highway 1 mile west of Salmo.

Owner: D. NORCROSS, Granite Road, Nelson.

Metals: Gold, silver, lead, zinc.

Work Done: D. Norcross explored the workings after the previous operator, Silver Dollar Mines Ltd., relinquished their option on the property. New rails and pipes were placed in the mine.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 242.

CURLETT (No. 88, Fig. 41)

By P. E. Olson

Location: Lat. 49° 11.5′ Long. 117° 15.5′ (82F/3E, 3W)
Immediately north of the Salmo–Nelway highway just east of Salmo.

Claims: About 20 recorded mineral claims on the east side of Salmo River, including the CURLETT group.

Access: The property is serviced by a mining-road which leaves the Salmo–Nelway highway, about one-quarter of a mile east of the Salmo River bridge.

Owner: PERRY CREEK MINES LTD., 1202, 1177 West Hastings Street, Vancouver 1; Paul Urbanovitch, field manager.

METAL: Molybdenum.

WORK DONE: A camp was set up and some stripping and blasting done where cuts had been made by previous operators.

DESCRIPTION: Metamorphosed rocks, possibly of the Rossland Formation, outcrop along the east side of the Salmo River and carry disseminated grains of pyrite and molybdenite. Mineralization trends along gneissic planes which have a Northerly strike, but insufficient work has been done to demonstrate the extent of the mineralization.

ERIE CREEK

NEW ARLINGTON (No. 90, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 13.4′ Long. 117° 19.6′ (82F/3W)
On Mineral Mountain, between Whisky and Rest Creeks, tributaries of Erie Creek from the east.

CLAIMS: Ten Crown-granted mineral claims including the ARLINGTON (Lot 3648), on which the main workings are located.

ACCESS: Via the Erie Creek road, which leaves the Salmo–Trail highway immediately east of Erie Creek bridge.

OPERATOR: G. D. FOX AND ASSOCIATES, 3307 Dahlia Crescent, Trail.

METALS: Gold, silica (*see* Table 12 for production).

WORK DONE: As in previous years, old dumps were hauled to the Trail smelter. About 300 feet of new level was driven on a newly discovered vein on the CANADIAN QUEEN (Lot 3240) which adjoins the ARLINGTON to the south.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 242.

DESCRIPTION: Stripping and road building on the CANADIAN QUEEN disclosed evidence of a quartz vein which carries low values in gold. This vein strikes northerly and has a near vertical dip. Some ore from this vein was shipped to the Trail smelter.

TRIXIE V (No. 91, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 15′ Long. 117° 19.5′ (82F/6W)
At the head of Rest Creek, a tributary of Erie Creek from the east.

CLAIMS: PATTY M recorded mineral claims.

ACCESS: Via mining- and logging-roads along Erie and Rest Creeks.

OWNERS: CARL WILSON and LEONARD BRADLEY, P.O. Box 369, Salmo.

METALS: Gold, silica.

WORK DONE: Drifting on the Trixie V vein. The elevation of the workings is 4,300 feet.

DESCRIPTION: The Trixie V was staked in 1886 and Crown-granted in 1904 (Lot 3848), but later reverted to the Crown. About 1904, a drift was driven along a narrow vein of gold quartz for about 150 feet, and in 1969, this level was advanced about 50 feet but was abandoned after a barren dyke was encountered.

HATTIE (No. 25, Fig. 41)

LOCATION: Lat. 49° 16′ Long. 117° 22′ (82F/6W)
East side of Erie Creek between Burnt and Craigtown Creeks.

ACCESS: Six miles by road from Erie.

OPERATOR: McINTYRE PORCUPINE MINES LIMITED, 312, 409 Granville Street, Vancouver 2.

Metals: Molybdenum, copper.

Work Done: Geological mapping, soil samples collected and analysed for copper, molybdenum, and zinc, and surface diamond drilling of five holes totalling 2,335 feet under the direction of T. G. Merserern.

RAND (No. 29, Fig. 41)

By P. E. Olson

Location: Lat. 49° 19.5′ Long. 117° 24′ (82F/6W)
On Erie Creek, about 10 miles north of Erie.

Claims: About 20 recorded and Crown-granted claims including the RAND Fraction (Lot 14666); the SECOND RELIEF (Lot 2463) is not included in the group.

Access: The property is serviced by 10 miles of mining-road which leaves the Salmo–Trail highway at the Erie Creek bridge.

Operator: CALMARK EXPLORATIONS LTD., 124 East 15th Street, North Vancouver.

Metal: Gold.

Work Done: Geological mapping and magnetometer and geochemical exploration of 30 contiguous claims on both sides of Erie Creek.

References: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 213 (*see* Dick, Ralph); Assessment Report No. 2146.

Description: The Second Relief mining camp has been inactive since 1941 except for leasing. Prior to 1941, mines in this area were major gold producers.

Iron Mountain

JERSEY MINE (No. 16, Fig. 41)

By P. E. Olson

Location: Lat. 49° 05.9′ Long. 117° 13.5′ (82F/3E)
On Iron Mountain between Lost and Sheep Creeks.

Claims: Fifty-six Crown-granted mineral claims.

Access: Via two roads which leave the Salmo–Nelway highway at points 4 and 6½ miles from Salmo. The more northerly road (Emerald) is the main road.

Owner: CANADIAN EXPLORATION LIMITED, 700, 1030 West Georgia Street, Vancouver 5; mine office, Salmo; E. A. Lawrence, mine manager; G. Adolphson, mine superintendent; A. Filyk, mill superintendent.

Metals: Lead, zinc (*see* Table 12 for production).

Work Done: The mine and mill operated continuously during the year on a five-day-week basis, treating about 2,500 tons per day. An increasing amount of production came from pillar recovery, mainly in the "A" zone. A three-conductor No. 2 A.W.G. Teck cable was installed in the J4000 trackless area to supply power for fans and scraper hoists.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 243, 244.

Description: Ore reserves dropped slightly during the year necessitating the commencement of pillar extraction. During pillar mining several falls of ground took place, mainly in heavily fractured areas.

INVINCIBLE (No. 45, Fig. 41)

By P. E. Olson

Location: Lat. 49° 06.8′ Long. 117° 13.2′ (82F/3E)
On Iron Mountain adjacent to the Jersey mine.

Claims: The INVINCIBLE (Lot 12084) and adjoining claims are part of the Jersey and Emerald mine area.

Access: Via 4 miles of mine road from Salmo–Nelway highway.

OWNER: CANADIAN EXPLORATION LIMITED, 700, 1030 West Georgia Street, Vancouver 5; mine office, Salmo.

METAL: Tungsten.

WORK DONE: Following a decision to develop tungsten ore on the INVINCIBLE a start was made to collar the main incline. This entrance is on the GOLD STANDARD (Lot 907) at an elevation of 3,870 feet.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 244.

DESCRIPTION: The Invincible ore will be mined by trackless methods and access to the ore zone will be by 6,000 feet of incline tunnel, 14 feet high by 16 feet wide, inclined downwards at 6 per cent. The Emerald tungsten mill will be rehabilitated to handle about 500 tons per day, starting in early 1971.

LOST CREEK

OTTER (No. 15, Fig. 41)

LOCATION: Lat. 49° 05′–07′ Long. 117° 12′ (82F/3E)
Seven miles southeast of Salmo on the southwest slope of Nevada Mountain.

CLAIMS: OTTER, 13 claims.

ACCESS: By road from the Jersey mine.

OWNER: CANEX AERIAL EXPLORATION LTD., 700, 1030 West Georgia Street, Vancouver 5.

METALS: Molybdenum, tungsten, lead, zinc.

WORK DONE: A geological survey was made and 471 soil samples taken for geochemical analysis.

REFERENCE: *B.C. Dept. of Mines,* Bull. No. 41, 1959.

REMAC

REEVES MacDONALD MINE (No. 46, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 01.3′ Long. 117° 21.9′ (82F/3W)
On the north side of the Pend-d'Oreille River, 4 miles west of Nelway.

CLAIMS: About 75 recorded and Crown-granted claims at Remac.

ACCESS: The mine is on the Nelway–Waneta road, 4 miles from Nelway.

OWNER: REEVES MacDONALD MINES LIMITED, Remac; W. N. Blayney, mine manager; M. B. Wiwchar, assistant mine manager and chief engineer; J. M. McDearmid, mill superintendent.

METALS: Lead, zinc (*see* Table 12 for production).

WORK DONE: A general mining programme was continuously maintained during the year. Long-hole mining diminished during the year and was replaced by selective sub-level mining which employed air-operated load-haul-dump machines.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 245, 246.

DESCRIPTION: Ore reserves diminished in the Reeves zone, along with metal content, so more selective mining methods were instituted although this necessitated a sharp drop in tonnage. By year end, milling was reduced to about half of design capacity. Mining in the main Reeves zone is expected to cease late in 1970.

ANNEX (No. 47, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 00.8′ Long. 117° 22.3′ (82F/3W)
Immediately south of the Pend-d'Oreille River, south of Remac.

CLAIMS: About 40 recorded and Crown-granted claims which adjoin the main Reeves MacDonald holdings along the Pend-d'Oreille River.

Access: The mine is serviced by a private mining-road and bridge from Remac.

Owner: REEVES MacDONALD MINES LIMITED, Remac.

Metals: Lead, zinc.

Work Done: Shaft sinking, drifting, crosscutting, and raising, including several 48-inch diameter bore holes. Development of the Annex mine continued throughout the year and the following equipment was installed: Locomotive battery-charging unit, 15 horsepower; four mine-ventilating fans, 120 horsepower; Ottumwa hoist, 100 horsepower; four pumps, 124 horsepower; 1000 level substation, three 50-kva., 3 kilovolt-440 volt transformers; 1750 level hoistroom, six 25-kva. 3 kilovolt-440 volt transformers.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 245 (*see* Reeves MacDonald).

Description: The Annex ore is in a faulted section of the Reeves limestone which lies to the south of the Pend-d'Oreille River. Exploration has shown that ore grades at the Annex will be higher than those experienced on the north side of the river. Selective mining methods are planned, and the ore will be trucked from the mine to the Reeves MacDonald mill at Remac.

BAR (No. 37, Fig. 41)

Location: Lat. 49° 01′ Long. 117° 26′ (82F/3W)
Three miles southwest of Remac.

Claims: BAR 1 to 46.

Access: By logging-roads from Waneta, a distance of about 15 miles.

Owner: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

Metals: Lead, zinc, silver.

Work Done: One diamond-drill hole, 1,491 feet long, was drilled to test the Reeves limestone west of its mineralized outcrop, on the Red Bird property. The work was under the supervision of D. W. Heddle.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 245; *B.C. Dept. of Mines*, Bull. No. 41, p. 93.

CRESTON

TOPAZ (No. 10, Fig. 41)

Location: Lat. 49° 09′ Long. 116° 46′ (82F/2W)
Twelve miles west of Creston, on the north slope of Summit Creek between Topaz and Toby Creeks.

Claims: TOPAZ, TOBY, 15 located claims.

Access: Via Highway No. 3.

Owner: MAGOG MINING CO. LTD., 201, 846 West Hastings Street, Vancouver 1.

Metals: Copper, nickel, cobalt, silver, lead, zinc.

Work Done: Electromagnetic and magnetometer surveys of TOPAZ 1 to 5 claims and 12 trenches in bedrock totalling 250 feet.

Reference: Assessment Report No. 2062.

Description: Chalcopyrite and pyrrhotite are disseminated in a diorite sill. Galena, sphalerite, and cassiterite occur in a quartz vein.

OTTO SILVER (No. 89, Fig. 41) Long. 116° 28.8′ (82F/1W)

Location: Lat. 49° 07.8′ By P. E. Olson

On Arrow Mountain, 4 miles northeast of Creston.

Claims: Four OTTO SILVER claims.

Access: Via logging-road from Creston.

Owner: MELVIN HINKEL AND ASSOCIATES, Salmo.

Metals: Silver, lead.

Work Done: Old portals were cleared out and some ore was sorted and stockpiled at the mine. The property lies to the east of the Alice mine and may be on the same vein system.

References: *Minister of Mines, B.C.,* Ann. Repts., 1904, p. 133; 1925, p. 249 (*see* Alice).

Description: The Otto Silver vein strikes northeasterly, dips vertically, and carries scattered grains of galena in a quartz gangue. Silver content of sorted lead ore is reported to be high.

LEADVILLE (No. 87, Fig. 41) By P. E. Olson

Location: Lat. 49° 12.8′ Long. 116° 19.3′ (82F/1W)

About 5 miles north of Kitchener, on the east side of Goat River, at an elevation of about 3,500 feet.

Claims: The STAR and SUN recorded mineral claims, formerly LEADVILLE.

Access: Via 5 miles of logging- and mining-roads from Kitchener along the east side of Goat River.

Owner: F. J. BRADY, P.O. Box 766, Creston.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Trenching in rock. About 3 tons of sorted ore was shipped to the Trail smelter.

References: *Minister of Mines, B.C.,* Ann. Rept., 1925, p. 250; *Geol. Surv., Canada,* Mem. 228, p. 60.

Description: A narrow fracture, which strikes westerly and dips vertically, cuts a formation of quartzites and schists nearly at right angles. Where the fracture cuts a quartzite layer about 50 feet thick dipping gently to the east, galena and sphalerite, associated with vein quartz, are found in scattered bunches and veinlets. Many years ago, about 75 feet of drifting was done in quartzite along the fracture.

LIZ B (No. 24, Fig. 41)

Location: Lat. 49° 12.5′ Long. 116° 34.5′ (82F/2E)

Claims: LIZ B, TAG.

Access: Two miles via mining-roads north from Wynndel.

Owner: ASPEN GROVE MINES LTD., 826, 510 West Hastings Street, Vancouver 2.

Metals: Silver, lead, zinc.

Work Done: Magnetometer survey of an area about one-half mile square mainly along and south of Wilds Creek and immediately east of Highway No. 3.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 246; Assessment Reports Nos. 1695 and 2022.

SLOCAN MINING DIVISION

INONOAKLIN CREEK

DIXIE (No. 23, Fig. 41)

LOCATION: Lat. 50° 00′ Long. 118° 21′ (82E/16W, 82L/1W)
Immediately west of Highway No. 6, mainly on the south side of Banting Creek.
CLAIMS: DIXIE, 20 located claims.
OWNER: Peter J. Burjoski.
OPERATOR: SOUTH OAK MINES LTD., Ninth Floor, 850 West Hastings Street, Vancouver 1.
WORK DONE: Ten miles of line-cutting and 18,000 feet of bulldozer stripping.
REFERENCE: Assessment Report No. 2023 (line-cutting).

BURTON

MILLIE MACK (No. 4, Fig. 41) By P. E. Olson

LOCATION: Lat. 50° 02.7′ Long. 117° 43.2′ (82K/4E)
At elevation 6,000 feet on the north side of Caribou Creek, 9 miles northeast of Burton.
CLAIMS: Ninety-six recorded and Crown-granted claims, including the MILLIE MACK (Lot 1831).
ACCESS: By 11 miles of gravel and four-wheel-drive road from Burton.
OWNER: RICHWOOD SILVER MINES LTD., 1650, 777 Hornby Street, Vancouver 1.
METALS: Gold, silver, lead, zinc.
WORK DONE: Topographic and geological maps of the surface and underground workings were made, roads were repaired, trenches were bulldozed, and one adit was extended 100 feet. The shoulder of the mountain adjacent to the old Millie Mack workings was stripped to bedrock and the rock deeply trenched, with total work amounting to about 100,000 yards of material being moved. The resultant exposure showed a complex network of quartz veins in black argillite. Bulk sampling of the trenched zones was done late in the year.
REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 248.

SPRINGER CREEK

PORT HOPE (No. 80, Fig. 41)

LOCATION: Lat. 49° 47.5′ Long. 117° 26.2′ (82F/14W)
Three miles northeast of Slocan.
CLAIMS: Thirty-four claims, including PORT HOPE (Lot 5493) and NEW PHOENIX FRACTION (Lot 4851) held as mineral leases.
ACCESS: By road and 1½ miles of trail from Slocan.
OWNER: RED METAL MINES LTD., 210, 1956 West Broadway, Vancouver 9.
METALS: Gold, silver.
WORK DONE: Six open pits and five diamond-drill holes totalling 434 feet.
REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 148.

OTTAWA (No. 66, Fig. 41)

By P. E. Olson

Location: Lat. 49° 47.4′ Long. 117° 24.0′ (82F/14W)
On the north side of Springer Creek, 5 miles from Slocan.

Claims: The OTTAWA Crown-granted mineral claim (Lot 4968) and 10 other claims.

Access: Via the Springer Creek road, which leaves the Slocan–Nelson highway one-half mile south of Slocan.

Owner: Slocan Ottawa Mines Ltd.

Operator: PAMICON DEVELOPMENTS LTD., 303, 1624 East Broadway, Vancouver 12. Pamicon has a lease on the Ottawa mine and mill and M. Poznikoff and partners have sub-leased the mine from Pamicon.

Metal: Silver.

Work Done: Considerable dump rock from No. 8 level was milled, and some ore mined underground from No. 9 level was milled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 248.

Description: Milling of dumps proved unsuccessful owing to insufficient silver and possibly owing to difficulties in recovery. Very little ore is available in the old mine workings and hence much exploration is required. Ore zones were fairly well cleaned up during 1968.

ARLINGTON (No. 67, Fig. 41)

By P. E. Olson

Location: Lat. 49° 47.4′ Long. 117° 21.6′ (82F/14W)
The Arlington mine is on the north side of Springer Creek, about 7 miles from Slocan.

Claims: Sixteen Crown-granted and recorded mineral claims, including the ARLINGTON (Lot 2416).

Access: Via the Springer Creek road, which leaves the Slocan–Nelson highway immediately south of Slocan.

Owner: ARLINGTON SILVER MINES LTD., 809, 525 Seymour Street, Vancouver 2; mine office, Slocan; S. Walsh, manager.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Drifting, raising, and stoping on A and B levels. Surface diamond drilling was done between G and H levels.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 249.

Description: An extension of the Arlington vein is reported to have been intersected by diamond-drill holes above and north of the main workings. Stoped ore, which is mainly salvage from old workings, was shipped to the Trail smelter.

LITTLE TIM (No. 69, Fig. 41)

By P. E. Olson

Location: Lat. 49° 48.4′ Long. 117° 22.4′ (82F/14W)
The Little Tim mine is near the head of Little Tim Creek, a tributary of Springer Creek from the north. Principal workings are at an elevation of 6,600 feet.

Claims: The LITTLE TIM group, comprising the V DAY, VICTORY V, UTE Fraction, UOME, and CACHE claims, is surrounded by the LITTLE TIM 1 to 11 claims. The mine is on the V DAY.

Access: By 4 miles of poor jeep road from the Ottawa mine.

Operator: MOLY-WIN MINING LTD., 827, 510 West Hastings Street, Vancouver 2.

Metals: Silver, lead (*see* Table 12 for production).

Work Done: The old camp buildings were repaired and portals made safe. Some stoping was done, mainly above No. 4 level. Two carloads of ore was shipped to the Trail smelter. Work was under the direction of T. Savage, of Nakusp.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 249.

MEMPHIS CREEK

HOMESTAKE (No. 70, Fig. 41)

By P. E. Olson

Location: Lat. 49° 49.2′ Long. 117° 25.0′ (82F/14W)

On the north side of Memphis Creek, about 1 mile east of the Slocan–Silverton highway, and at an elevation of 4,000 feet.

Claims: The HOMESTAKE Crown-granted mineral claim (Lot 15283).

Access: Via 2 miles of jeep-road from the Slocan-Silverton highway.

Owner: C. THICKETT AND ASSOCIATES, Slocan.

Metals: Gold, silver (*see* Table 12 for production).

Work Done: A new adit was driven about 75 feet down-dip from the old workings and was later connected by raise to a winze driven from the upper level. Some stoping was done and resultant ore was shipped to the Trail smelter.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 249, 250.

Description: The new adit encountered vein material below the old workings. The character of the ore was unchanged. It occurs in bunches and lenses of small tonnage.

COLORADO (No. 54, Fig. 41)

By P. E. Olson

Location: Lat. 49° 49.1′ Long. 117° 20.1′ (82F/14W)

On Memphis Creek, at an elevation of 5,000 feet.

Claims: WHITE HOPE Nos. 8 to 11 recorded mineral claims, which cover the old Colorado mine.

Access: Via 3 miles of switchback mining-road along the north side of Memphis Creek from the Slocan–Silverton highway.

Owner: Rama Mining & Development Limited.

Operator: HYPERION SILVER MINES LIMITED, c/o R. M. Bentley, Castlegar.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Raising and some stoping. A small shipment of selected ore was sent to the Trail smelter.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 250.

ENTERPRISE CREEK

ENTERPRISE (No. 65, Fig. 41)

By P. E. Olson

Location: Lat. 49° 49.3′ Long. 117° 19.5′ (82F/14W)

On Enterprise Creek, about 4 miles from the Slocan–New Denver highway.

Claims: The ENTERPRISE Crown-granted mineral claim (Lot 1014) and several adjoining claims.

Access: Via mining-road along the north side of Enterprise Creek.

Owner: ENTERPRISE SILVER MINES LTD., c/o A. Mazur, Revelstoke.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Some buildings were rehabilitated and a small amount of ore was mined from the vicinity of No. 5 level.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 250.

DESCRIPTION: Following a small amount of productive work around No. 5 level, the operation was closed indefinitely.

WESTMONT (No. 64, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 50.0′ Long. 117° 19.4′ (82F/14W)
On the north side of Enterprise Creek, about 4 miles from the Slocan–New Denver highway.

CLAIMS: WESTMONT (Lot 8929) and eight other adjoining Crown-granted mineral claims.

ACCESS: Via mining-roads along the north side of Enterprise Creek.

OWNER: EASTMONT SILVER MINES LTD., 506, 905 West Pender Street, Vancouver 1.

METALS: Silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Some drifting and stoping, mainly on No. 5 level of the Westmont mine. Hand-sorted ore was shipped to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 250.

SILVERTON

GALENA FARM (No. 62, Fig. 41)

LOCATION: Lat. 49° 55.8′ Long. 117° 21.5′ (82F/14W)
Two and one-half miles south of Silverton.

CLAIMS: CURRIE (Lot 744), GROVER (Lot 1330), STEVENSON (Lot 1331), PEERLESS REVISED (Lot 1332), KATE (Lot 1333).

ACCESS: By road from Silverton.

OPERATOR: LARCH MINING LTD., Silverton (under lease from Red Deer Valley Coal Company, Limited).

METALS: Silver, lead, zinc.

WORK DONE: Three bulldozer trenches totalling 350 feet long and two diamond-drill holes totalling 265 feet.

FREDDY (No. 62, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 56.1′ Long. 117° 21.2′ (82F/14W)
The Freddy mine is 1 mile south of Silverton, at an elevation of about 2,300 feet.

CLAIMS: The FREDDY Crown-granted mineral claim (Lot 4025).

ACCESS: Via mining-road from Silverton, a distance of 2 miles.

OWNER: V. HANSEN, New Denver.

METALS: Silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Stoping and hand sorting. About 52 tons of ore was shipped to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 251.

HEWITT (No. 61, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 56.0′ Long. 117° 18.0′ (82F/14W)
The Hewitt mine is on the south side of Silverton Creek, about 3 miles east of Silverton, at an elevation of about 4,000 feet.

CLAIMS: HEWITT (Lot 4440), LORNA DOONE (Lot 1401) Crown-granted mineral claims.

Access: Via 5 miles of mining-road from Silverton to the portal of No. 9 level.
Owner: A. K. Lotze.
Operator: FRANK PHO, New Denver (under lease arrangement).
Metals: Silver, lead, zinc.
Work Done: The shaft below No. 9 level was deepened about 100 feet and No. 13 level established. This work was done during December.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 251.
Description: The Hewitt ore zone is developed below the main haulage level (No. 10) by a winze and four levels. The ore zone is known to pinch with depth, but carries appreciable amounts of ruby silver as well as galena and sphalerite.

BOSUN (No. 56, Fig. 41)

By P. E. Olson

Location: Lat. 49° 58.4′ Long. 117° 21.8′ (82F/14W)
Astride the Silverton–New Denver highway, 1 mile north of Silverton.
Claims: The BOATSWAIN FRACTION (Lot 3112) and several other Crown grants.
Access: An access road to No. 6 level leaves the Silverton–New Denver highway 1 mile north of Silverton.
Owner: Red Deer Valley Coal Company, Limited.
Operator: LARCH MINING LTD., Silverton.
Metals: Silver, lead, zinc.
Work Done: No. 6 level has caved for some distance and the company started to restore this level.
References: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 83; *Geol. Surv., Canada,* Mem. 308, p. 134.

STANDARD (No. 63, Fig. 41)

By P. E. Olson

Location: Lat. 49° 57.8′ Long. 117° 19.1′ (82F/14W)
On the north side of Silverton Creek, about 2 miles east of Silverton.
Claims: The property consists of a large number of claims, including the STANDARD (Lot 564).
Access: The main access road leaves Silverton on the north side of Silverton Creek.
Owner: PANOIL CANADIAN MINERALS ASSOCIATES, Silverton.
Metals: Silver, lead, zinc (*see* Table 12 for production).
Work Done: Drifting, raising, and stoping below the Hecla level. Work was suspended in October and the operation remained closed for the remainder of the year. The ore was milled at Silverton.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 251.
Description: All available ore below the Hecla level was extracted prior to the mine's closing. Although the ore appeared continuous along sublevels, the vertical extent was disappointing. Levels below the Hecla are flooded.

SANDON

SILVER BELL (No. 59, Fig. 41)

By P. E. Olson

Location: Lat. 49° 58.7′ Long. 117° 18.3′ (82F/14W)
About 1 mile north of Idaho Peak.
Claims: SILVER BELL (Lot 1887).
Access: Via road from Sandon which services the QUEEN BESS and ALAMO properties.

Operator: JOHN NESBITT, of Silverton, holds the property under lease arrangement.
Metals: Silver, lead, zinc (*see* Table 12 for production).
Work Done: Stoping and hand sorting in old workings.
References: *Minister of Mines, B.C.*, Ann. Rept., 1896, p. 55; *Geol. Surv., Canada,* Mem. 184, C. E. Cairnes, p. 123.

LEI (No. 59, Fig. 41)

Location: Lat. 49° 58′ Long. 117° 20′ (82F/14W)
Two miles southeast of New Denver.
Claims: LEI 5 to 8.
Owner: T. D. WILKINSON, 948 Garrow Drive, Port Moody.
Metals: Silver, lead, zinc.
Work Done: Geochemical soil testing of an area about 500 feet wide and 3,000 feet long north to south, near the old Hartney mine.
Reference: Assessment Report No. 1974.

SILMONAC (MINNIEHAHA) (No. 55, Fig. 41)

By P. E. Olson

Location: Lat. 49° 58.3′ Long. 117° 15.2′ (82F/14W)
One mile southwest of Sandon.
Claims: Sixty-two Crown-granted mineral claims and three leases. The 4625 level is collared on the MINNIEHAHA (Lot 3170).
Access: The property is reached by good mining-roads from Sandon.
Owner: Silmonac Mines Ltd.
Operators: KAM-KOTIA MINES LIMITED and BURKAM MINES LTD., New Denver; J. C. Black, manager.
Metals: Silver, lead, zinc.
Work Done: Drifting and raising 4,930 feet and diamond drilling 23 holes totalling 2,837 feet to explore further the lode discovered in 1967. Two 7.5-horsepower fans were installed. One 5-horsepower motor-generator set and one 2.5-ton battery locomotive were moved from 3996 level to 4625 level.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 253.
Description: Exploration has covered an area measuring about 400 feet by 400 feet on the lode. The lode is about 30 feet in thickness and carries strands and veinlets of ore which tend to have steeper dips than the main lode. About 5,000 tons of ore from exploration workings has been stockpiled at the Carnegie mill and the portal of the 4625 level.

VICTOR (No. 55, Fig. 41)

By P. E. Olson

Location: Lat. 50° 00.0′ Long. 117° 16.1′ (82F/14W)
Immediately south of Three Forks.
Claims: The VICTOR (Lot 4565) and a large block of adjoining claims.
Access: By 2 miles of good road that leaves Sandon at the Carnegie mill.
Owner: Kam-Kotia Mines Limited.
Operators: E. H. PETERSEN and E. PEREPOLKIN of Sandon.
Metals: Silver, lead, zinc (*see* Table 12 for production).
Work Done: The operators have a lease on the mine and worked mainly around No. 5 level, shipping ore to the Trail smelter and the Silverton mill.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 254.

CONDUCTOR (No. 55, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 58.9′ Long. 117° 17.0′ (82F/14W)
In the Queen Bess basin on the northeast slope of Idaho Peak.

CLAIMS: The CONDUCTOR (Lot 1251) and adjoining claims.

ACCESS: Via the Idaho Peak-Queen Bess mining-roads from Sandon.

OWNER: NORTHERN LIGHTS MINERALS LTD., New Denver.

METALS: Silver, lead, zinc.

WORK DONE: Road building and stripping under the direction of M. C. Robinson.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1903, p. 137.

SLOCAN SOVEREIGN (No. 57, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 59.2′ Long. 117° 11.7′ (82F/14E)
On Reco Mountain, about 1 mile northeast of Cody.

CLAIMS: SLOCAN SOVEREIGN (Lot 1927).

ACCESS: Via the Cody-Reco mine road.

OWNER: Liberty Mines Ltd.

OPERATOR: CODY MILLING & SMELTING LTD., 403, 1200 West Pender Street, Vancouver 1; field office, Kaslo.

METALS: Silver, lead, zinc.

WORK DONE: Portal areas of No. 3 and No. 4 levels were repaired and a tram terminus building was renovated. A small test mill was installed in the tram building but was not operated. The portals and mill are on the MOLLIE (Lot 621A).

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 255.

RECO, BLUEBIRD (No. 57, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 59.4′ Long. 117° 10.9′ (82F/14E)
On Reco Mountain, about 1 mile northeast of Cody, at elevations of 4,000 to 7,000 feet.

CLAIMS: The property consists of 68 recorded and Crown-granted mineral claims, including the BLUEBIRD (Lot 540) and CHAMBERS (Lot 1752).

ACCESS: By mining-road from Sandon via Cody.

OWNER: Mrs. J. M. Harris.

OPERATOR: RECO SILVER MINES LIMITED, 201, 535 Howe Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE: Geochemical prospecting and detailed geological mapping were done mainly on the BLUEBIRD. The 4785 level on the CHAMBERS was advanced about 150 feet. About 500 feet of diamond drilling was also done.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 255, 256.

DESCRIPTION: The drifting done on the CHAMBERS was a continuation of work done many years ago when the 4785 drift was advanced about 120 feet on the Chambers vein.

MADISON (No. 57, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 59.2′ Long. 117° 12.8′ (82F/14E)
On the north side of Carpenter Creek, about 1 mile northeast of Sandon.

CLAIMS: The MADISON (Lot 1411) and several adjoining claims.

ACCESS: Via 1½ miles of mining-road which starts in Sandon on the abandoned K & S railway grade.

Owner: Lorenzo Blondeau.

Operator: BLACK CRICKET MINES LIMITED, 1006, 1550 McGregor Avenue, Montreal, P.Q.

Metals: Silver, lead, zinc.

Work Done: Road building and stripping on the MADISON claim.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 252.

RETALLACK-THREE FORKS

McALLISTER (No. 60, Fig. 41)

By P. E. Olson

Location: Lat. 50° 03.4′ Long. 117° 14.6′ (82K/3E)

On the northwest slope of London Ridge, about 3 miles from Three Forks, at an elevation of 5,500 to 5,900 feet.

Claims: ROWSE FRACTIONAL (Lot 11901) and several adjoining claims.

Access: Via 4 miles of fair road along Kane Creek from Three Forks.

Owner: LIBERTY MINES LTD., 201, 535 Howe Street, Vancouver 1; mine office, Kaslo.

Metal: Silver.

Work Done: The portal area of No. 6 level was prepared for mining. A new portal, which was started in 1968, was not advanced during the year.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 254.

Description: The company has applied for a millsite on Kane Creek and has gone to considerable expense to improve roads and set up equipment and buildings at the mine. There are no known ore reserves in the mine.

JO JO (No. 27, Fig. 41)

Location: Lat. 50° 04′ Long. 117° 14′ (82K/3E)

On O.K. Creek, tributary of Kane Creek, at an elevation of 4,800 feet above sea-level.

Claims: JO JO (Lot 1839) and HALTON CHIEF (Lot 2158) reverted Crown-granted claims held under mineral lease.

Access: By road, 8 miles from New Denver.

Owner: CAIRN MINES LTD., 301, 540 Burrard Street, Vancouver 1.

Metals: Silver, lead.

Work Done: Underground work and trenching are reported to have been done by two men working under contract for one week under the direction of J. Lamb.

WASHINGTON (No. 12, Fig. 41)

By P. E. Olson

Location: Lat. 50° 00.1′ Long. 117° 13.1′ (82K/3E)

On the south side of McGuigan Creek, at an elevation of 5,800 to 6,400 feet.

Claims: Fourteen claims, including the WASHINGTON (Lot 541) and SLOCAN BOY (Lot 626) Crown grants.

Access: Via the Antoine mine road which follows the north side of McGuigan Creek.

Owner: Larch Mining Ltd.

Operator: RED DEER VALLEY COAL COMPANY, LIMITED, P.O. Box 93, Silverton; W. H. McLeod, manager.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Exploration included a geochemical survey, three bulldozer cuts, and six diamond-drill holes totalling 315 feet. About 2,000 tons of dump rock from the WASHINGTON was shipped to the Red Deer Valley Coal Company's mill at Silverton for treatment.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 255.

Description: Larch Mining Ltd. is a subsidiary of Red Deer Valley Coal Company, Limited, which owns and operates a custom mill about 1 mile south of Silverton.

PANAMA (No. 31, Fig. 41)

By P. E. Olson

Location: Lat. 50° 03.8′ Long. 117° 12.3′ (82K/3E)

On London Ridge, about 1½ miles northwest of Zincton. Main workings are at an elevation of 6,900 feet.

Claims: The PANAMA (Lot 3152) and several adjoining claims.

Access: By 3½ miles of very steep road from Fish Lake on the Kaslo–New Denver highway.

Owner: VIMY EXPLORATIONS LTD., 702, 850 West Hastings Street, Vancouver 1.

Metal: Silver.

Work Done: Five diamond-drill holes totalling 1,917 feet were put down to explore a possible southern extension of the vein explored by Vimy during the past three years.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 251.

Description: It is reported that the drilling failed to pick up the Panama vein. Drilling was difficult and core recovery was poor.

ANTOINE (No. 58, Fig. 41)

By P. E. Olson

Location: Lat. 50° 00.2′ Long. 117° 11.8′ (82K/3E)

Near the head of McGuigan Creek, a tributary of Seaton Creek from the south.

Claims: About 16 mineral claims, including the ANTOINE (Lot 516).

Access: Via 9 miles of good road which leaves the Kaslo–New Denver highway 3 miles east of Three Forks.

Owner: ANTOINE SILVER MINES LTD., 506, 905 West Pender Street, Vancouver 1.

Metals: Silver, lead, zinc.

Work Done: The property was idle during the year. Equipment, buildings, and machinery were left at the mine in the care of a watchman. About 500 tons of low-grade ore remains stockpiled at the bottom of the mine road.

Reference: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 254.

COWBOY, TEXAS, FOURTH OF JULY (No. 71, Fig. 41)

By P. E. Olson

Location: Lat. 50° 00.0′ Long. 117° 08.3′ (82K/3E)

Near the head of Robb Creek, a tributary of Kaslo River from the south.

Claims: COWBOY (Lot 4888), TEXAS (Lot 4889), FOURTH OF JULY (Lot 2052), and several other Crown grants and recorded claims.

Access: Via a steep mining-road from the Kaslo–New Denver highway.

Owner: L. N. Garland, Kaslo.

Operator: SILVER CHALICE MINES, Kaslo.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Drifting, raising, and stoping on the Fourth of July level. Some ore was shipped to the Red Deer Valley mill at Silverton.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1959, p. 67.

Description: Work on the property started in 1968 and was suspended in June, 1969. Low-grade ore had been exposed by surface cuts and drifting early in the century on the TEXAS claim. Most work was done in the " lower adit " on the FOURTH OF JULY.

DUBLIN QUEEN (No. 71, Fig. 41)

Location: Lat. 50° 00.3′ Long. 117° 09.7′ (82K/3E)
Two and one-half miles south of Retallack, near the head of Stenson Creek.

Claims: Nine contiguous Crown-granted claims, including the DUBLIN QUEEN (Lot 1167).

Access: By mining-road south from Retallack.

Operator: ISKUT SILVER MINES LTD., 534 Burrard Street, Vancouver 1.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done: Geochemical survey of the KOOTENAY STAR (Lot 1168) and OPHER (Lot 1169) claims; 35,000 square feet of bulldozer stripping; 130 feet of underground exploration.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 256; *Geol. Surv., Canada,* Mem. 184, pp. 224–227.

Description: The drift, elevation 6,600 feet above sea-level, started in 1968, was continued about 100 feet along a narrow vein and about 12 tons of ore from this level was shipped to Trail. A new adit, 100 feet below 6600 level, was collared and driven about 25 feet.

KAT (No. 22, Fig. 41)

Location: Lat. 50° 03′ Long. 117° 06′ (82K/3E)
East side of Lyle Creek, 3 miles east of Retallack.

Claims: KAT, two located claims.

Owner: D. W. SMELLIE, 1666 West Broadway, Vancouver 9.

Work Done: Geochemical soil survey; 22 samples at 100-foot intervals.

Reference: Assessment Report No. 2037.

KASLO RIVER

HECLA (No. 5, Fig. 41)

Location: Lat. 50° 02′ Long. 117° 03′ (82K/3E)
South slope of Mount Jardine, 10 miles northwest of Kaslo.

Claims: OLE, 19 claims, some of which cover the cancelled Crown-granted claim HECLA (Lot 7379).

Owner: SENATE MINING AND EXPLORATION LIMITED, 1300, 355 Burrard Street, Vancouver 1.

Metals: Silver, lead.

Work Done: Geochemical soil survey of an area one-half mile north to south and 1 mile east to west near two small lakes in the basin south of Mount Jardine.

References: Assessment Report No. 1997; *Geol. Surv., Canada,* Mem. 184, p. 222.

KEEN CREEK

ANDEX (No. 13, Fig. 41)

LOCATION: Lat. 49° 51′ Long. 117° 08′ (82F/14E)
Fifteen miles southeast of Kaslo.

CLAIMS: About 50 located claims, including ANDEX, WHITEY, H, and K, covering the old Index property.

ACCESS: By road from Kaslo up Keen Creek.

OPERATOR: ANDEX MINES LTD., 305, 543 Granville Street, Vancouver 2.

METALS: Silver, lead, zinc.

WORK DONE: Bulldozer stripping in a series of trenches totalling 2,108 feet and 230 feet of surface diamond drilling in four holes.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 255; *Geol. Surv., Canada*, Mem. 184, p. 223.

WOODBURY CREEK

SCRANTON (No. 72, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 47.3′ Long. 117° 03.6′ (82F/14E)
In Kokanee Glacier Park near the head of Pontiac Creek, a tributary of Woodbury Creek from the south.

CLAIMS: SCRANTON (Lot 7452), GRANDVIEW (Lot 6279), and several other Crown-granted and recorded mineral claims.

ACCESS: Via 11 miles of good road along Woodbury Creek from the Ainsworth–Kaslo highway.

OWNER: SILVER STAR MINES LTD., 400, 837 West Hastings Street, Vancouver 2.

METALS: Gold, silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Drifting, raising, and stoping on the 5700 and 5900 levels. Considerable road work was done to enable ore to be hauled from the mine to the Blue Star mill at Ainsworth. The following was installed during 1969: One 48-kva. diesel-driven generator; one 24-kva. diesel-driven generator (standby); a 440 power-line for mine and camp distribution; one battery locomotive and rectifier type charger at 5700 level; one battery locomotive and charging unit at 5900 portal; two 6-horsepower fans, one at 5700 portal and the other at 5900 portal.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 258.

DESCRIPTION: An ore intersection was made on the 5700 level down-dip from the main ore zone on the 5900 level, and a raise was driven between the levels on this ore zone. Ore was not continuous in this raise but sufficient was found to start shipments of 50 tons per day to the Ainsworth mill, starting in November. The mine operated all year and the Blue Star mill operated for about six weeks at 50 tons per day A shipment of high-grade ore was made to the smelter.

AINSWORTH

SILVER HOARD (No. 74, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 44.8′ Long. 116° 57.1′ (82F/10W)
The Silver Hoard mine is at an elevation of 4,300 feet on the south side of Cedar Creek, 1 mile north of Ainsworth.

CLAIMS: SILVER HOARD Crown grant (Lot 10712) and the DELLIE FRACTIONAL Crown grant (Lot 10711).

ACCESS: Via the Cody Caves road which leaves the Ainsworth–Kaslo highway 1 mile south of Woodbury Creek.

OWNER: S. L. McLELLAN, Ainsworth.

METALS: Silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Some hand-sorted ore was shipped to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 258.

SKYLINE (No. 75, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 43.6′ Long. 116° 57.9′ (82F/10W)
On the south side of Krao Creek, 2½ miles west of Kootenay Lake at an elevation of 5,600 feet.

CLAIMS: The SKYLINE Crown grant (Lot 137) and several adjoining recorded claims.

ACCESS: Via logging and mining roads which also service the Cody Caves park.

OWNER: W. E. LANE AND ASSOCIATES, of Ainsworth.

METALS: Silver, lead, zinc (*see* Table 12 for production).

WORK DONE: Roads were built to the property and the lower level was cleaned out. Surface stripping was done and considerable material from the dump was shipped to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 259.

DESCRIPTION: The dumps proved uneconomical and stripping failed to expose any appreciable mineralization.

GREENACRES (No. 76, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 44.7′ Long. 116° 54.7′ (82F/10W)
The Greenacres mine lies 1 mile north of Ainsworth, at an elevation of 2,000 feet. The Greenacres workings are immediately south of the Jewel Crown grant (Lot 10785).

CLAIMS: The GREENACRES recorded mineral claim and several adjoining claims.

ACCESS: By road from Ainsworth.

OWNER: MULTIPLE MINING LTD., 569 Howe Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE: The crosscut which was driven in 1968 was extended several feet.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 257.

DESCRIPTION: Work done thus far on the GREENACRES has failed to intersect the ore strands found on the surface, although the workings are down-dip from the surface mineralization.

BELLE AIRE (No. 77, Fig. 41)

By P. E. Olson

LOCATION: Lat. 49° 41.8′ Long. 116° 55.1′ (82F/10W)
Adjacent to the Coffee Creek bridge on the Balfour–Ainsworth highway.

CLAIMS: The MARGARET Nos. 1 to 4 recorded mineral claims, formerly BELLE AIRE.

ACCESS: Principal showings are beside the highway.

OWNER: GRENMAC SILVER MINES LIMITED, 448 Seymour Street, Vancouver 2.

METALS: Silver, lead, zinc.

Work Done: The upper adit was advanced about 50 feet.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 260.

Description: The Belle Aire mine appears to be on the south extension of the Highlander-Banker structure, which strikes northerly and dips to the west at about 45 degrees.

LARDEAU

MOONSHINE (No. 78, Fig. 41)

By P. E. Olson

Location: Lat. 50° 08.2′ Long. 116° 57.4′ (82K/2W)

On the west side of the Kaslo–Lardeau highway, 1 mile south of Lardeau.

Claims: The property consists of 40 to 50 claims, including the MOONSHINE (Lot 1881) and RIGHT BOWER (Lot 1882) Crown grants.

Access: An access road leaves the Kaslo–Lardeau road about one-quarter mile south of the Davis Creek bridge.

Owner: DENNIS HOLDINGS LTD., 53, 845 Hornby Street, Vancouver 1.

Metals: Silver, lead, zinc.

Work Done: Road work and some stripping around the old portals.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 260.

Description: Dennis Holdings Ltd. acquired the property near the end of 1968 and prepared for an underground exploration programme. A survey of the Crown grants in relation to the underground workings indicates that the mine is not on the MOONSHINE or the RIGHT BOWER Crown-granted claims.

DUNCAN RIVER

BRUCE (No. 50, Fig. 41)

By P. E. Olson

Location: Lat. 50° 15.4′ Long. 116° 54.8′ (82K/7W)

On Lavina Mountain, 1 mile east of Duncan Dam, at an elevation of 4,000 feet.

Claims: The BRUCE group of eight recorded claims, formerly MAG.

Access: Via a switchback road which leaves the Duncan Valley access road about 2 miles north of the Duncan Dam.

Owner: BOUNDARY EXPLORATION LIMITED, Grand Forks.

Metals: Silver, lead, zinc.

Work Done: Stripping and sampling.

References: *B.C. Dept. of Mines*, Bull. No. 49, p. 76.

Description: A narrow structure striking south 15 degrees east and dipping westerly at 70 degrees and carrying lenses of galena is exposed on the access road at an elevation of 4,000 feet.

EASY M (No. 50, Fig. 41)

By P. E. Olson

Location: Lat. 50° 15.2′ Long. 116° 57.2′ (82K/7W)

Near the west end of the Duncan Dam.

Claims: EASY M and several adjoining recorded mineral claims.

Access: Principal showings are on the Duncan Dam road, about 300 feet from the main gate toward the dam.

Owner: JOHN MADISON and partners.

Metals: Lead, zinc.

Work Done: Stripping and sampling.

DESCRIPTION: Excavation associated with construction of the Duncan Dam, exposed stringers of sphalerite and minor galena in dolomitic limestone. There appears to be no dissemination of sulphides in the limestone. One veinlet, near the west contact of the limestone, has a strike of north 20 degrees west and a dip of 70 degrees to the east. This vein contains nearly pure sphalerite over widths up to 4 inches.

FOG (No. 52, Fig. 41)

LOCATION: Lat. 50° 15′ Long. 116° 55′ (82K/7W)
One and one-half miles west of Mount Lavina, halfway between Duncan and Kootenay Lakes.

CLAIMS: FOG 1 to 21.

ACCESS: By road, 25 miles from Kaslo.

OWNER: KING RESOURCES COMPANY, 1300 Elveden House, Calgary 2, Alta.

METALS: Lead, zinc, silver, copper.

WORK DONE: Surface workings surveyed geologically and geochemically.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 258; Assessment Report No. 1561.

DESCRIPTION: Vein and replacement deposit in limestone and dolomite.

PRESIDENT, HAUSER (No. 79, Fig. 41)

By P. E. Olson

LOCATION: Lat. 50° 24.9′ Long. 116° 59.6′ (82K/7W)
On Gallop Creek, on the west side of Duncan Lake.

CLAIMS: HAUSER (Lot 2008), PRESIDENT (Lot 2066), and many adjoining claims.

ACCESS: Via jeep-road along Howser Ridges from the Duncan Dam area.

OWNER: BOUNDARY EXPLORATION LIMITED, 148 Tenth Street S.E., Grand Forks.

METALS: Silver, lead, zinc.

WORK DONE: Geochemical prospecting, hydraulic stripping, and road building.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1925, p. 236.

DESCRIPTION: High-grade silver-lead ore was exposed when Gallop Creek was diverted to ground sluice overburden. Road construction, from the 5,200-foot elevation on the Howser Ridge fire access road, was started in November. Work was directed by R. E. Wolverton, of Christina Lake.

FARSIDE (No. 14, Fig. 41)

LOCATION: Lat. 50° 45′ Long. 117° 10′ (82K/14E)
Along the Duncan River near the mouth of Stevens Creek, 30 miles north of Duncan Lake.

CLAIMS: Thirty-five located claims, FARSIDE, CAB, DOT, JEB.

OPERATOR: BRYANT MINES LIMITED, 1, 373 Baker Street, Nelson.

METALS: Silver, lead, molybdenum.

WORK DONE: Trenching and open cuts totalling 1,800 feet.

RIONDEL

BLUEBELL MINE (No. 73, Fig. 41) By P. E. Olson

LOCATION: Lat. 49° 45.7′ Long. 116° 51.5′ (82F/15W)
The mine is on the east side of Kootenay Lake, about 6 miles north of Kootenay Bay.

CLAIMS: The BLUEBELL holdings cover about 15 square miles centred around Riondel.

ACCESS: Six miles by road from Kootenay Bay.

OWNER: COMINCO LTD; company office, Trail; mine office, Riondel.

METALS: Silver, lead, zinc (*see* Table 12 for production).

WORK DONE: About 230,000 tons of ore was mined and milled during the year. No. 8 level was driven northerly to extend below the more northerly ore zone of the mine. Considerable other exploration and development work was done, including raise boring. Three 200-kva. dry-type transformers and three 40-horsepower pumps were installed in the north end of No. 8 level.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 261.

DESCRIPTION: Ore discovery has not kept pace with extraction. Exploration under the north end of the mine was unproductive. Due to a shortage of stoping areas, it was necessary to cut production back to about 600 tons per day at the mill.

CRAWFORD CREEK

HUMBOLT (No. 35, Fig. 41)

LOCATION: Lat. 49° 45′ Long. 116° 38′ (82F/10E)
Rose Pass and the basin of Crawford Creek.

CLAIMS: About 100 recorded claims and several Crown grants, including the HUMBOLT (Lot 2015).

ACCESS: By road from Crawford Bay, approximately 15 miles.

OPERATOR: ROSE PASS MINES LTD., 630A—17th Avenue S.W., Calgary 3, Alta.; Glen Champion, field manager.

METALS: Silver, lead, zinc.

WORK DONE: The company built half a mile of road on Spring Creek to drill sites on the BAREFOOT 1 claim where 450 feet of X-ray diamond drilling in four holes was done. Ten trenches totalling 900 feet were bulldozed.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 262.

REVELSTOKE MINING DIVISION

PERRY RIVER

RIP (No. 95, Fig. 41)

LOCATION: Lat. 51° 14′ Long. 118° 42.5′ (82M/2E)
Twenty-five miles northwest of Revelstoke, on the west side of the Perry River.

CLAIMS: RIP, 40 recorded claims.

ACCESS: By helicopter from Revelstoke.

OWNER: RIP VAN MINING LTD., 940, 540 Fifth Avenue S.W., Calgary 1, Alta.

METAL: Molybdenum.

WORK DONE: Five trenches, totalling 115 feet, and six rock cuts with a total length of 110 feet were made to expose showings of molybdenite in a northerly trending layer of nepheline syenite gneiss in metamorphic rocks of the Shuswap Complex.

REFERENCE: *Geol. Assoc., Canada*, Special Paper No. 6, 1970, pp. 87–98.

REVELSTOKE

MOUNT COPELAND MINE (KNOX) (No. 38, Fig.41)

By E. Sadar

LOCATION: Lat. 51° 08′ Long. 118° 29′ (82M/1W)
Fifteen miles northwest of Revelstoke.

CLAIMS: Several hundred comprising KNOX, XX, etc.

ACCESS: Access by 20 miles of gravel road from Trans-Canada Highway, 2 miles west of Revelstoke. The road follows Jordan River and Hiren Creek and passes through an avalanche area.

OWNER: King Resources Company.

OPERATOR: KRC OPERATORS LTD., Box 1700, Revelstoke; K. G. Collins, mine manager; W. C. Fothergill, mine superintendent; M. G. Sveinson, mill superintendent.

METAL: Molybdenum.

WORK DONE:

The following mine work was carried out on behalf of the company by Versatile Tunnel Contractors Ltd., Kamloops, in preparation for bringing the mine into production: Drifting and crosscutting, 2,155 feet; raising, 1,215 feet; shaft raising, 395 feet; diamond drilling, underground, 5,138 feet; diamond drilling, surface, 605 feet; slashing, 27,432 cubic feet; ore, broken and stockpiled, 3,072 tons; waste, broken, 23,432 tons. A 200-ton-per-day crusher and concentrator is being constructed by Humphrey Construction Ltd., Vancouver, and was 90 percent complete at year end. Additional construction consisted of extending snowsheds over the bunkhouse, dining hall, and power house.

The installation of two 1,000-cubic-foot air compressors and a single-drum hoist was in progress at the end of the year. Three substations each containing three 200-kva. transformers were built. Ten thousand five hundred feet of cable was installed.

The major equipment in the crushing plant and concentrator consists of: A jaw crusher driven by a 60-horsepower motor; a secondary crusher driven by a 75-horsepower motor; a 5 by 10 ball-mill driven by a 100-horsepower motor; a 3 by 4 ball-mill driven by a 15-horespower motor; eight flotation cells driven by eight 2-horsepower motors; a cyclone pump driven by a 15-horsepower motor, 5 by 10 mill to conditioner. Other equipment consists of conveyors, pumps, and filtering equipment.

The access road was relocated, straightened, and gravelled. There were 63 people employed at year end.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 262.

VICTOR (No. 51, Fig. 41)

LOCATION: Lat. 50° 56′–60′ Long. 118° 23′–27′ (82L/16W)
Nine miles west of Revelstoke.

CLAIMS: VIC, TOR, 39 contiguous claims approximately covering the drainage basin of Victor Creek.

ACCESS: By road from Revelstoke and by helicopter to the highest parts of the property.

OWNER: CONSOLIDATED GEM EXPLORATIONS LTD., 201, 527 Seventh Avenue S.W., Calgary, Alta.

Work Done: Geological and geochemical survey. One hundred and sixty-eight samples of soil and talus fines from the Eagle River Valley and the Victor Creek area were analysed for copper, molybdenum, lead, and zinc.

References: Assessment Reports Nos. 2079, 2080, and 2081.

NIN (No. 30, Fig. 41)

Location: Lat. 50° 55.5′ Long. 118° 21′ (82L/16W) Eight miles southwest of Revelstoke.

Claims: NIN, 21 continguous claims.

Access: By helicopter from Revelstoke.

Owner: W. J. WORRALL, 1790, 777 Hornby Street, Vancouver 1.

Work Done: Geochemical, geological, and magnetometer surveys were made of an area, approximately 2 miles square, along the upper eastern slope of the valley north of Mount English.

Reference: Assessment Report No. 2153.

STANNITE (No. 39, Fig. 41)

By E. Sadar

Location: Lat. 51° 12′ Long. 117° 54′ (82N/4W) Twenty miles northeast of Revelstoke on Clabon Creek.

Claims: Sixty-three claims comprising ALICE, HELENA, BEE, MAY, CORA, EMILY, and others, formerly known as the WOOLSEY, REGAL SILVER, and SNOWFLAKE.

Access: Via Trans-Canada Highway, 17 miles east of Revelstoke, then north for 7 miles along Woolsey and Clabon Creeks.

Owner: STANNEX MINERALS LTD., 815, 850 West Hastings Street, Vancouver 1; J. B. C. Lang, general manager.

Metals: Silver, lead, zinc.

Work Done: Drifting, 2,470 feet; crosscutting, 1,239 feet; raising, 782 feet. All work was carried out by Versatile Tunnel Contractors Ltd., Kamloops. Thirty-five men were employed for approximately six months. The access road from the Trans-Canada Highway was widened and ditched during the year.

References: *Minister of Mines, B.C.*, Ann. Repts., 1967, p. 263; 1968, p. 263.

WIGWAM (No. 6, Fig. 41)

By R. I. Thompson

Location: Lat. 50° 52′ Long. 117° 58′ (82K/13W) North slope of Akolkolex River, 14 miles southeast of Revelstoke.

Claims: More than 90 located claims covering the old WIGWAM property and adjacent area.

Access: By road from Revelstoke.

Operator: CANEX AERIAL EXPLORATION LTD., 800, 1030 West Georgia Street, Vancouver 5.

Metals: Lead, zinc.

Work Done: A steep cat road was built west of the old workings to an elevation of 4,000 feet and eight surface diamond-drill holes, totalling 4,065 feet, were drilled in two fans to test mineralization exposed in old trenches and shallow underground workings. Geological and geochemical surveys were also made.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 264.

DESCRIPTION:

The geology of the property consists of a limestone unit, considered to be equivalent to the Lower Cambrian Badshot Formation between two layers of dark grey to black phyllite of the Index Formation. These units trend approximately north and dip to the east at 20 to 30 degrees. This attitude and these stratigraphic relationships appear to continue well beyond the limits of the property. The regional structure which causes the repetition of the Index Formation is unknown. The limestone contains concentrations of galena and sphalerite.

The Badshot Formation is composed primarily of finely crystalline, thick to thin-bedded, light-grey limestone. Near the lower part of the formation as it is exposed on the property, the rock is a medium- to coarse-grained marble commonly containing thin laminæ of dark argillaceous material. Bands and lenses of brown phyllite are also common in the marble near the lower contact. The continuity of the limestone is further disrupted by lenses and bands of fine-grained, light- to dark-grey siliceous material referred to as "silica rock." One good exposure of the lower contact exhibits a zone of alternating coarse-grey marble, dark silica rock, and black phyllite. This zone has an approximate width of 100 feet. The upper contact is sharp, with limestone passing directly into dark-green phyllite.

The most conspicuous structures within the limestone on the property are isoclinal to near-isoclinal folds. The hinge zones of the folds trend approximately on an azimuth of 140 degrees and plunge 0 to 15 degrees southward. The axial surfaces are generally curved and dip toward the east. A second set of folds, more open than the first, has steeply dipping axial surfaces which appear to be nearly co-axial with the isoclinal structures. The relationship between the two types of folds is not clearly defined.

The sulphide mineralization consists primarily of fine-grained pyrrhotite, pyrite, galena, sphalerite, and minor amounts of chalcopyrite. It occurs as lenses mainly in buff weathering white limestone associated with the silica rock. Lenses of sulphides range from less than 1 inch to several feet thick and are exposed for a few hundred feet along the slope of the hill which cuts obliquely across the dip of the formations. Grades in lead and zinc are low and very little silver is present. The thickest and highest grade parts of the sulphide lenses are thought to be controlled by the folding and one purpose of the drilling was to establish a relationship between the folds and the mineralization.

NORTH LARDEAU

LB (LUCKY BOY) (No. 98, Fig. 41)

LOCATION: Lat. 50° 38.5′ Long. 117° 36.2′ (82K/12E)
At elevation 4,200 feet, 3 miles west of Trout Lake.

CLAIMS: Six Crown-granted claims including LB (Lot 5423), COPPER CHIEF (Lot 4584), and HORSESHOE (Lot 5342) held as a mineral lease and about 30 located claims surrounding the Crown grants.

OWNER: Alan Marlow.

OPERATOR: CASCADE MOLYBDENUM MINES LTD., 539 Eighth Avenue S.W., Calgary 2, Alta.

WORK DONE: Geological mapping and 2,500 feet of bulldozer trenching in seven trenches.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 264; *B.C. Dept. of Mines*, Bull. No. 45, 1962, pp. 59–64.

TRUE FISSURE (No. 40, Fig. 41)

By P. E. Olson

Location: Lat. 50° 42.5′ Long. 117° 30′ (82K/11W)
On Great Northern Mountain about 2 miles north of Ferguson.

Claims: TRUE FISSURE (Lot 1097), HILLSIDE (Lot 1098), GREAT NORTHERN (Lot 1099), BROADVIEW (Lot 1550), and many other claims.

Access: Via 3 miles of good mining-road from Ferguson.

Owner: COLUMBIA METALS CORPORATION, LIMITED, 1002, 80 Richmond Street West, Toronto, Ont.; mine office, Trout Lake.

Metals: Silver, lead, zinc.

Work Done: The Ferguson-True Fissure road was widened to handle tandem trucks and a 125-ton-per-day flotation mill was hauled to the mine. The Morgan adit was slashed to 8 feet in width and extended a few feet. A mill site was prepared at the portal of the Morgan adit. A 20-kva. plant is used to supply lighting to the camp.

References: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 264; *B.C. Dept. of Mines,* Bull. No. 45, p. 79.

SILVER CUP (No. 41, Fig. 41)

By P. E. Olson

Location: Lat. 50° 38′ Long. 117° 22′ (82K/11W)
Near the head of Cup Creek, a tributary of Lardeau Creek, about 5 miles southeast of Ferguson.

Claims: SILVER CUP (Lot 768), TOWSER (Lot 1565), and other claims.

Access: Via mining roads along Lardeau and Cup Creeks from Ferguson.

Owner: SILVER DAWN MINES LTD., 203, 1033 West Pender Street, Vancouver 1.

Metals: Silver, lead, zinc.

Work Done: The mine road was repaired and the upper levels mapped and sampled. Iron oxide sediment was cleared from No. 7 level to allow entry into the main workings on No. 7 and upper levels. Levels below No. 7 are flooded and no attempt was made to dewater them.

References: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 229; *B.C. Dept. of Mines,* Bull. No. 45, p. 75.

GOLDEN MINING DIVISION

SPILLIMACHEEN

ATLANTA, HORSESHOE, MOUNTAIN DAISEY (No. 99, Fig. 41)

Location: Lat. 50° 56.7′ Long. 116° 27.6′ (82K/16W)
On Jubilee Mountain, 5½ miles northwest of Spillimacheen.

Claims: ATLANTA (Lot 134), HORSESHOE (Lot 266), MOUNTAIN DAISEY (Lot 647), SILVER KING (Lot 648), LANCASTER (Lot 1112), CORNWALL (Lot 15305), MANCHESTER (Lot 15304), LONDON (Lot 15303), FERMANAGH (Lot 15306), and HOPE 1 to 39.

Access: By road, 6 miles from Spillimacheen.

Operator: CALIX MINES LTD., 9031 Hudson Street, Vancouver 14.

Metals: Silver, lead, copper.

Work Done: Geology and surface workings mapped, two trenches totalling 200 feet bulldozed, four small pits blasted, 2½ acres stripped by bulldozer, 1½ miles of access road built, and four holes totalling 850 feet diamond drilled.

RUTH VERMONT (No. 93, Fig. 41)

By R. W. Lewis

LOCATION: Lat. 50° 56.9′ Long. 116° 58.9′ (82K/15W)
On the south side of Vermont Creek, 25 miles southwest of Golden.

CLAIMS: Six reverted Crown grants, including RUTH (Lot 418), MINNIE (Lot 419), VERMONT (Lot 8123) held as a mineral lease and about 40 located claims surrounding it.

ACCESS: By logging-road via Vowell Creek from Parson, a distance of about 30 miles.

OWNER: COPPERLINE MINES LTD., 407, 475 Howe Street, Vancouver 1, under the supervision of H. R. Graham.

METALS: Silver, lead, zinc.

WORK DONE: During the summer of 1969 work was concentrated on road repair and maintenance, building renovation, repairing of the 5755 portal, and the excavation and preparation of foundations for mill erection. The company also employed a crew of men at the Mineral King mine to dismantle the mill and powerhouse ready for shipment to the Ruth Vermont.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1966, p. 230; 1967, p. 265.

ADR (No. 92, Fig. 41)

LOCATION: Lat. 50° 55.5′ Long. 116° 58.5′ (82K/15W)
At the head of Vowell Creek, 30 miles west of Spillimacheen.

CLAIMS: ADR 1 to 21.

ACCESS: By logging-road from Parson, 35 miles.

OWNER: J. S. Adamson.

OPERATOR: MEDESTO EXPLORATION LTD., 215A Tenth Street N.W., Calgary, Alta.

METALS: Silver, lead.

WORK DONE: One diamond-drill hole 225 feet long was made using a hydraulic drill with a 1$\frac{3}{16}$-inch core size.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 265.

BUGABOO CREEK

SILVER BASIN (No. 8, Fig. 41)

LOCATION: Lat. 50° 41.2′ Long. 116° 44.7′ (82K/10W)
Bugaboo Pass.

CLAIMS: WESTERN CROSS (Lot 1978), No. 21 (Lot 1977), and SILVER 1 to 22 (formerly SILVER BASIN property).

ACCESS: Thirty miles by road and trail up Bugaboo Creek from Brisco.

OPERATOR: PURCELL DEVELOPMENT CO. LTD., Brisco.

METALS: Silver, lead, zinc.

WORK DONE: Geological mapping, sampling, electromagnetic surveys, and diamond drilling of nine holes totalling 1,000 feet under the direction of W. C. Jones of Brisco. A road was started from Bugaboo Creek to the showings.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1936, p. E 42 (Special Report).

DESCRIPTION: Quartz veins and replacements containing galena, sphalerite, pyrrhotite, pyrite, and minor chalcopyrite and argentite occur in a succession of argillaceous limestones and limy argillites in the Horsethief Creek Group.

HORSETHIEF CREEK

COPPER KING, IMPERIAL (No. 7, Fig. 41)

LOCATION: Lat. 50° 25′ Long. 116° 29′ (82K/8W)
On the northwest slope of Black Diamond Mountain at the head of Farnham Creek.

CLAIMS: About 80 claims, including NORTH LIGHT (Lot 9994), IRON MASK (Lot 9991), IMPERIAL (Lot 9993), COPPER KING (Lot 9988), BROKEN HILL (Lot 9992) Crown-granted claims held as a mineral lease (formerly Tatler group).

ACCESS: Thirty-two miles by road from Invermere.

OWNER: JUMBO MINES LTD., 617, 402 West Pender Street, Vancouver 3.

METALS: Copper, silver, lead, zinc, gold.

WORK DONE: Approximately 11 line-miles of electromagnetic survey and nine trenches totalling 161 feet in length, all 3 to 4 feet deep.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1920, p. 114; 1968, p. 266; Assessment Reports Nos. 1614 and 1977.

DESCRIPTION: Chalcopyrite, tetrahedrite, freibergite, galena, sphalerite, azurite, malachite, and pyrite occur in silicified fractures in Mount Nelson quartzite and dolomitic limestone.

RAD (No. 83, Fig. 41)

LOCATION: Lat. 50° 25′ Long. 116° 24′ (82K/8W)
Valley of Delphine Creek. The camp and helicopter pad are at an elevation of 7,000 feet on the south side of the creek.

CLAIMS: Fifty RAD claims.

ACCESS: Twenty-three miles from Invermere by road.

OWNER: J. S. Adamson.

OPERATOR: MEDESTO EXPLORATION LTD., 215A Tenth Street N.W., Calgary, Alta.

METALS: Silver, lead, copper.

WORK DONE: Two trenches and 816 feet of diamond drilling in four holes.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 267.

TOBY CREEK

MELODY (No. 84, Fig. 41)

LOCATION: Lat. 50° 19.5′ Long. 116° 22.5′ (82K/8W)
Four miles up Coppercrown Creek from its junction with Toby Creek.

CLAIMS: Eighty-five claims, MELODY, SILVER KING, COPPER CROWN.

ACCESS: By 6 miles of trail from the Toby Creek road.

OWNER: Consolidated New Pacific Limited.

OPERATOR: NORTH CANADIAN OILS LIMITED, 640 Seventh Avenue S.W., Calgary 2, Alta.

METALS: Silver, lead, zinc.

WORK DONE: Six open cuts totalling 450 feet were blasted in bedrock and one old adit was cleaned out.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1925, p. 224 (Silver Spray); 1968, p. 267; Assessment Report No. 1897.

DUTCH CREEK

DUTCHY (No. 97, Fig. 41)

LOCATION: Lat. 50° 16′ Long. 116° 23′ (82K/8W)
North side of Dutch Creek 20 miles west of Columbia Lake.

CLAIMS: DUTCHY 1 to 10.

ACCESS: By logging-road west from Canal Flats.

OWNER: J. H. Conroy, of Invermere.

OPERATORS: COMINCO LTD., 1199 West Pender Street, Vancouver 1, and YORNOC MINING CO. LTD., P.O. Box 606, Invermere.

METAL: Copper.

WORK DONE: Geological mapping was done by Cominco Ltd. One hundred soil samples were taken and nine trenches, with a total length of 200 feet, were made by hand.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 266.

YORNOC (No. 21, Fig. 41)

LOCATION: Lat. 50° 19′ Long. 116° 14′ (82K/8E)
Near the head of Ben Abel Creek, 16 miles southwest of Invermere.

CLAIMS: YORNOC, about 30 recorded claims.

ACCESS: By helicopter from Invermere.

OWNER: J. H. Conroy.

OPERATOR: DRESSER INDUSTRIES, INC., 301, 415 Third Street S.W., Calgary 1, Alta.

METALS: Lead, silver, barite.

WORK DONE: Geological, geophysical, and geochemical surveys were made of parts of the claim group under the supervision of J. Carter, company geologist.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 266; Assessment Reports Nos. 2051A and 2051B.

FORT STEELE MINING DIVISION

SKOOKUMCHUCK

MOLLY (No. 86, Fig. 41)

LOCATION: Lat. 49° 56′ Long. 116° 18′ (82F/16W)
Head of Skookumchuck Creek.

CLAIMS: MOLLY 1 to 14.

ACCESS: Twelve miles by trail from the end of the road up Skookumchuck Creek.

OWNER: COMINCO LTD., 1199 West Pender Street, Vancouver 1; field address, P.O. Box 2000, Kimberley.

METALS: Tungsten, molybdenum.

WORK DONE: Geological mapping of all claims on a scale of 200 feet to the inch; 20 trenches, total length 1,400 feet; 18 hand pits, total depth 90 feet; 11 surface diamond-drill holes, total footage 815 feet.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1959, p. 74.

PRE (No. 82, Fig. 41)

LOCATION: Lat. 49° 56′ Long. 115° 40′ (82G/13E)
Twenty miles northeast of Kimberley near Premier Lake.

CLAIMS: PRE, 340 claims.

ACCESS: Via 4 miles of road from Skookumchuck.

Owner: COMINCO LTD., 1199 West Pender Street, Vancouver 1.

Work Done: Geological mapping of all the claims, 20 line-miles of magnetic and gravity surveys covering 30 claims, and a geochemical survey of 10 claims in which 200 samples were tested for zinc, lead, copper, and iron. The work was under the direction of H. C. Morris and J. M. Hamilton.

KIMBERLEY

SULLIVAN MINE (No. 94, Fig. 41)

By R. W. Lewis

Location: Lat. 49° 42′ Long. 116° 00′ (82F/9E)

The Sullivan mine is on Mark Creek, 2 miles north of Kimberley, and the concentrator is at Chapman Camp, 2 miles south of Kimberley.

Claims: The holdings include 680 Crown-granted claims and fractions and 463 recorded claims.

Access: Off main highway at Kimberley.

Owner: COMINCO LTD., 1199 West Pender Street, Vancouver 1; Western Headquarters, Trail—J. H. Salter, vice-president, operations; S. M. Rothman, general manager, operations: Kimberley—G. W. Downie, manager, Kimberley operations; A. G. Stirling, acting superintendent, Sullivan mine; R. M. Lauer, superintendent, Sullivan concentrator.

Metals: Silver, lead, zinc (*see* Table 12 for production).

Work Done:

During 1969, about 2,157,000 tons of Sullivan ore was treated at the concentrator. In addition, the concentrator treated approximately 11,000 tons of Pine Point ore. The concentrator operated 241 days.

Development work amounted to approximately 34,200 feet and core-hole diamond drilling about 9,600 feet. Backfill amounted to 470,000 cubic yards of float, rock, cave, and development waste.

The ventilation system handled approximately 930,000 cubic feet of air per minute. The intake air heating plant at No. 24 shaft was completed. This unit has an output of 15 million B.T.U. per hour and is direct-fired on natural gas. Approximately 570,000 cubic feet of air per minute is now heated during cold weather.

The application of rock mechanics work to improve mining methods continued through the year.

The following technical developments directed toward improving mining methods were investigated. Trial and development of pneumatic stowing equipment were continued. Patents were granted on designs for multi-diameter percussion drill bit assemblies for reaming large relief holes. Investigations were initiated toward development of water-gel explosives suitable for use in small bore holes underground.

Locally manufactured metallized AN/FO was added to dry-mix explosives in regular use. Confidence in the use of unstressed mortar-grouted reinforcing bar for rock-bolting continued to increase with extensive application.

In 1969, the Sullivan mine had 22 lost-time accidents, and there were four lost-time accidents at the concentrator. No fatalities occurred at either operation. Accident frequency per million man-hours worked was 18.80 at the mine and 9.17 at the concentrator. The severity rate per million man-hours worked was 1,930.1 calendar days at the mine and 1,661.4 at the concentrator.

Fifteen Sullivan mine and concentrator employees obtained or renewed their industrial first-aid certificates, and 49 employees passed their St. John Ambulance first-aid examinations.

Twelve Sullivan mine employees obtained their mine-rescue certificates making a total of 374 since training first started in 1929.

Employees at year end totalled 675 at the mine and 229 at the concentrator.

A direct-heating gas burner system was installed in No. 24 ventilating shaft. A remote control and monitoring system was installed on No. 7 and No. 8 compressors at No. 1 shaft hoistroom. Cables and control were installed for a Markham stower.

In the mill, work was commenced on the installation of direct-current motors for automatic feeders for the rod-mill. Three new concentrate pumps were installed. A vacuum pump driven by a 250-horsepower motor was installed to replace several small ones. New concentrate car winches were installed which added 34 horsepower to the connected load. Further work was done toward improving the mill lighting.

KIM (No. 11, Fig. 41)

Location: Lat. 49° 37′–41′ Long. 115° 47′–55′ (82G/12W)
Immediately southeast of Kimberley.

Claims: KIM, 221 claims.

Access: By road from Marysville.

Owner: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue S.W., Calgary 1, Alta.

Work Done: Electromagnetic survey of an area 6 miles east to west and 4 miles north to south centred 6 miles southeast of Kimberley and surface diamond drilling of nine holes totalling 4,325 feet. The work was supervised by J. Hughson.

References: Assessment Reports Nos. 1715 and 2071.

ST. MARY RIVER

WARHORSE (No. 9, Fig. 41)

Location: Lat. 49° 34′ Long. 116° 11′ (82F/9E)
On the east side of Hellroaring Creek, 3 miles south of St. Mary Lake.

Claims: Four Crown-granted claims including WARHORSE (Lot 13077), HOPE (Lot 13078), GRANITE (Lot 13079), FAITH (Lot 13080), and 13 located claims.

Access: By road 17 miles from Marysville.

Owner: ST. MARY'S MINES LTD., 848 West Hastings Street, Vancouver 1.

Metals: Silver, lead, zinc.

Work Done: Eleven holes totalling 2,000 feet were diamond drilled from surface.

References: *Minister of Mines, B.C.,* Ann. Repts., 1930, p. 241; 1956, p. 108.

MOYIE

DAISY (No. 2, Fig. 41)

Location: Lat. 49° 22′ Long 115° 53′ (82G/5W)
Eleven miles southwest of Cranbrook, just west of Moyie Lake.

Claims: DAISY and three adjacent located claims to the southwest.

Owner: MERCURY EXPLORATIONS LIMITED, 700, 1281 West Georgia Street, Vancouver 5.

Work Done: Magnetic and gravimetric survey of parts of four claims in an area about 1 mile west of the south end of Munroe Lake.

Reference: Assessment Report No. 1876.

CARIBOO (No. 3, Fig. 41)

By James T. Fyles

LOCATION: Lat. 49° 22′ Long. 116° 10′ (82F/8E)
The showings are at an elevation of 6,500 feet on the southwest side of the basin at the head of North Moyie Creek.

CLAIMS: DANNY, JACKIE, JEANIE, LEONE, formerly CARIBOO.

ACCESS: From Lumberton on Highway No. 3 via 14 miles of logging-road and 3 miles of four-wheel-drive road.

OWNER: JOHN McLELLAN, 523 Tenth Street South, Cranbrook.

METALS: Tungsten, lead, zinc.

WORK DONE: One diamond-drill hole 120 feet long by the owner and associates.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1954, p. 145; 1955, p. 68.

DESCRIPTION:

The showings are in a zone of quartz and iron carbonate in schistose rocks in the Creston Formation. The Creston Formation in this area consists of quartzitic siltstone and argillaceous quartzite with a strong cleavage which strikes north 25 degrees east and dips steeply east. The bedding which regionally trends northeast and dips steeply to the northwest near the showing is tightly folded on axes which plunge 30 to 40 degrees to the north. A zone of rusty weathering iron carbonate with many irregular white quartz veinlets trends northeastward from the showings, a distance of one-quarter mile down the slope toward a small lake. This zone transects the bedding and cleavage and terminates at the showings.

The main showing consists of an irregular mass of iron carbonate and sericite schist cut by a fine stockwork of white quartz veinlets and irregular veinlets of chlorite or serpentine. Galena and sphalerite occur in fractures commonly with the quartz. Scheelite is present in grains scattered through the rocks and in clusters along fractures. This showing which was stripped by bulldozer in 1955 is about 150 feet long and 40 feet wide. It probably plunges to the north with the plunge of the folds. Three samples taken across the strike of the best mineralization assayed: Lead, 0.34 per cent; zinc, 0.68 per cent; tungsten (WO_3), 1.17 per cent over a total width of 14 feet. A sample of selected high-grade broken rock assayed: Silver, 1.4 ounces per ton; lead, 4.58 per cent; zinc, 1.09 per cent; tungsten (WO_3), 0.34 per cent.

Irregular lenses of iron carbonate and sericite schist extend northward from the main showing for about 200 feet, but do not contain significant amounts of lead, zinc, or tungsten. Samples from all the showings tested with a scintillation counter ranged from 0.001 per cent to 0.045 per cent U_3O_8 equivalent. The source of the radiation was not determined.

FORT STEELE

VICTOR (No. 96, Fig. 41)

LOCATION: Lat. 49° 36.7′ Long. 115° 28.5′ (82G/11W)
Nine miles east of Fort Steele near the head of Maus Creek.

CLAIMS: VICTOR 1 to 8.

ACCESS: By road from Fort Steele.

OPERATOR: VICTOR MINING CORPORATION LTD., 818, 510 West Hastings Street, Vancouver 2; Ralph Sostad, manager.

METALS: Silver, lead.

WORK DONE: Four trenches with a total length of 150 feet.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1917, p. 148; 1921, p. 128.

DIBBLE (No. 36, Fig. 41)

LOCATION: Lat. 49° 35′ Long. 115° 26′ (82G/11W)
Ten miles east of Fort Steele.

CLAIMS: LEO 1 to 40 covering the valley of Sunken Creek and reverted Crown grants of the Dibble mine.

ACCESS: By road and horse trail from Fort Steele or by helicopter.

OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue S.W., Calgary, Alta.

METAL: Copper, silver.

WORK DONE: Geological mapping and geochemical analyses of about 200 rock samples under the direction of W. J. Hill, company geologist.

REFERENCE: *Minister of Mines, B.C.*, Ann Rept., 1898, p. 1007.

BULL RIVER

ALKI (No. 81, Fig. 41)

LOCATION: Lat. 49° 30.3′ Long. 115° 29.5′ (82G/11W)
Twelve miles east of Cranbrook.

CLAIMS: ALKI 1 to 42.

ACCESS: Via 6 miles of road from Bull River.

OWNER: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

WORK DONE: Five line-miles of electromagnetic and magnetometer surveys covering four claims.

BIG BONANZA (No. 26, Fig. 41)

LOCATION: Lat. 49° 30′ Long. 115° 23′ (82G/11W)
On Burntbridge Creek north of the Bull River road.

CLAIMS: BONANZA, BIG BONANZA, FEBRUARY, JUNE, total of 62 located claims.

ACCESS: By road 8 miles from Wardner.

OWNER: J. Van Koughnett.

OPERATOR: PLACID OIL COMPANY, 860 Guiness House, Calgary, Alta.

METALS: Silver, lead, zinc, copper.

WORK DONE: Geological survey and soil sampling of all the claims covering most of the basin of Burntbridge Creek (1,250 samples), induced polarization and electromagnetic surveys of eight claims, and 17,766 feet of surface diamond drilling in 45 holes. Two and one-half miles of road was constructed. Nine men were employed for 10 months under the supervision of F. P. Kerr.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 269.

JAFFRAY

JAF (No. 85, Fig. 41)

LOCATION: Lat. 49° 20′–23′ Long. 115° 17′–20′ (82G/6W)

CLAIMS: JAF 1 to 80.

ACCESS: Six miles by road from Jaffray.

OWNER: COMINCO LTD., 800, 1199 West Pender Street, Vancouver 1.

WORK DONE: Five line-miles of geophysical work consisting of electromagnetic and magnetometer surveys over six claims.

GEOLOGICAL, GEOPHYSICAL, AND GEOCHEMICAL REPORTS

The Annual Report for 1958 lists all geological, geophysical, and geochemical reports which to that time had been credited for assessment work on mineral claims or placer leases. Since then each annual report lists the reports accepted during the current calendar year.

A copy of each report is filed in the office of the Mining Recorder for the mining division in which the property is located and a second copy is in the office of the Chief of the Mineralogical Branch, Department of Mines and Petroleum Resources, Victoria. These reports are available for examination one year after their date of submission. Because of space limitations in the Victoria office, it is requested that appointments for examinations be made in advance.

The property name is that which appears to be in most common use. It is not feasible to list all the claim names in each property. The author of each report is given as is the principal for whom the report was written.

The co-ordinate given for each report is the southeast corner of the 1-degree quadrilateral within which the property lies.

REPORTS CREDITED FOR ASSESSMENT, 1969

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
48° 123°	N.W.	LENORA, TYEE, RICHARD III Mount Sicker Mines Ltd. E. P. Sheppard. November 18, 1968.	1714	—	×	—	—
48° 124°	N.E.	ANNE Hibernia Mining Co. J. H. Montgomery. August 11, 1969.	1949	—	—	×	—
48° 124°	N.W.	NAT, NIT, LX Spacemaster Minerals Ltd. H. H. Cohen. August 25, 1969.	2019	—	×	—	—
49° 115°	S.W.	DAISY, BONNET, TRILLIUM Mercury Explorations Ltd. R. Currie and R. Gifford. June 11, 1969.	1876	—	×	—	—
49° 115°	N.W.	KIM Imperial Oil Enterprises Ltd. J. S. Scott and J. T. Hughson. October 29, 1968.	1715	—	×	—	—
49° 115°	N.W.	KIM Imperial Oil Enterprises Ltd. L. D. Kirwan. September 26, 1969.	2071	—	×	—	—
49° 116°	S.W.	LIZ B, TAG Aspen Grove Mines Ltd. D. L. Hings. October 3, 1969.	2022	—	×	—	—
49° 116°	S.W.	TOPAZ Magog Mining Co. Ltd. J. T. Cook. October 8, 1969.	2062	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 117°	N.E.	LEI T. D. Wilkinson. T. D. Wilkinson and D. P. Arscott. July 25, 1969.	1974	—	—	×	....
49° 117°	S.W.	MEL, KAY, ELI Salem Mines Ltd. A. R. Bullis. August 8, 1969.	2045	×	×	×	×
49° 117°	S.W.	RICH, CHIEF Salem Mines Ltd. A. R. Bullis. May 26, 1969.	1903A	—	—	—	×
49° 117°	S.W.	RICH Salem Mines Ltd. A. R. Bullis. May 4, 1969.	1903B	—	×	—	....
49° 118°	S.W.	AMANDY, RODERICK DHU, LADY OF THE LAKE Jack A. Millican. P. J. Haman. May 1, 1969.	1814	×	—	—	—
49° 118°	N.E.	BEAR, DOE Newmont Mining Corporation of Canada Ltd. G. W. H. Norman. May 15, 1969.	1845	×	—	—	....
49° 118°	S.W.	BG, SHUR, LINDA Ruth E. Hoehn. P. J. Haman. August 26, 1969.	1960	—	—	×	....
49° 118°	S.W.	BULLER, DENVER, CRESSANT, WET The Granby Mining Co. Ltd. J. Paxton and G. R. Rice. June 13, 1969.	1889	—	×	—	....
49° 118°	S.W.	CANADA DRY, LITTLE DALLAS, COPPER COIN Crown Silver Development Ltd. and Silver Dome Mines Ltd. D. R. Cochrane. June 11, 1969.	1878	—	×	—	....
49° 118°	S.W.	CROESUS, JOHANNESBURG Ortega Minerals Ltd. J. G. Baird and R. O. Crosby. June 25, 1969.	1887	—	×	—	....
49° 118°	N.W.	FUKI, DONAN Power Reactor & Nuclear Fuel Development Corporation. Kazumi Doi and T. Kikuchi. August 6, 1969.	2013	×	×	—	....
49° 118°	S.E.	GAL, HIDDEN HAND Galoco Exploration Ltd. P. J. Haman. August 6, 1969.	2063	×	—	—	....
49° 118°	S.W.	G-TO, LOIS, TEXAS Texas Gulf Sulphur Company. J. M. Newell. October 10, 1969.	2049	×	—	×	....
49° 118°	S.E.	HERB, JACK, GARNET, RUBY, MOLY Brycon Explorations Ltd. D. R. Cochrane and James Cerne. March 26, 1969.	1811	—	×	—	—
49° 118°	S.W.	LEXINGTON, CITY OF PARIS Lexington Mines Ltd. J. G. Baird. October 8, 1968.	1775	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 118°	S.W.	LOU Rip Van Mining Ltd. S. J. Hunter. December 20, 1968.	1722	—	—	×	—
49° 118°	S.E.	MT. VIEW Rover Mines Ltd. H. H. Cohen. June 26, 1969.	1920	—	×	—	—
49° 118°	N.E., N.W.	PEAK, DAY Great Horn Mining Syndicate Inc. J. L. Tindale. April 8, 1969.	1812	×	—	×	—
49° 118°	S.E.	SEATTLE, VIRGINIA CITY, IKE Ryslo Silver Mines Ltd. Joseph Sullivan. September 26, 1969.	2073	×	×	×	—
49° 118°	S.W.	SKYLARK, LAST CHANCE Sarco Investments Ltd. H. H. Shear and D. A. Chapman. April 18, 1969.	1819	×	×	—	×
49° 118°	S.W.	STAN, KR (EHOLT GROUP) King Resources Company. G. L. Anselmo and W. G. Stevenson. April 18, 1969.	1816	—	—	×	—
49° 118°	S.W.	TI Black Giant Mines Ltd. J. D. Poliquin. October 11, 1968.	1766	—	—	×	—
49° 118°	S.W.	TOP, LOST Copper Hill Mining and Exploration Ltd. G. A. Allcott. February 7, 1969.	1784	—	—	—	×
49° 119°	N.W.	DAN Canadian Superior Exploration Ltd. W. Rainboth. August 21, 1969.	1970	—	—	×	—
49° 119°	N.W.	DONA Bonnet Mines Ltd. Tom Rolston. September 25, 1969.	1978	—	—	—	×
49° 119°	N.W.	GLAD, CACHE Koporok Mines Ltd. D. R. Cochrane, James Cerne, and G. E. White. March 11, 1969.	1843	—	×	—	—
49° 119°	S.E., S.W.	LLOYD, DALE, DEN Dusty Chief Mines Ltd. August 29, 1969. ————	1967	—	—	—	×
49° 119°	S.E.	LYNX, LATE Roderick W. McLean and Kenneth G. Ewers. K. C. Rose. February 11, 1969.	1741	—	×	×	—
49° 119°	S.W.	OPULENCE, ROYAL BANNER, SS Lucky Strike Mines Ltd. J. G. Baird and R. O. Crosby. April 3, 1969.	1899	—	×	—	—
49° 119°	S.W.	OPULENCE, ROYAL BANNER, SS Lucky Strike Mines Ltd. W. R. Newman. April 3, 1969.	1900	×	—	—	—
49° 119°	S.W.	OPULENCE, ROYAL BANNER, SS Lucky Strike Mines Ltd. F. L. C. Price. April 3, 1969.	1901	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 119°	S.W.	PAYCHEX, PAPEX, KOPR, JILL Apex Exploration & Mining Co. Ltd. D. R. Cochrane. April 28, 1969.	1803	—	×	—	—
49° 119°	S.W.	PEN, AXE, JOE Multiple Mining Ltd. F. L. C. Price. May 26, 1969.	2027	—	×	—	—
49° 119°	S.E.	RAY, MARIE, RITA Rayore Mines Ltd. W. K. Lee. May 6, 1969.	1905	—	×	×	—
49° 119°	S.E.	ROCCO PLATA Red Rock Mines Ltd. R. B. Stokes and D. G. Leighton. August 5, 1969.	1927	—	—	×	—
49° 119°	S.E.	SOO Action Explorations Ltd. D. R. Cochrane. August 18, 1969.	1971	—	×	—	—
49° 119°	N.W.	SPIKE Dawood Mines Ltd. W. S. Read. May 30, 1969.	1894	—	×	×	—
49° 120°	N.W.	AMALG F. R. Burton. W. M. Sirola. October 28, 1969.	2028	—	×	—	—
49° 120°	S.W.	AXE Noranda Exploration Co., Ltd. B. O. Brynelsen and J. T. Walker. January 24, 1969.	1745	—	×	—	—
49° 120°	N.W.	BLUE JAY, BEE Ashland Oil & Refining Co. J. A. Woodard. March 27, 1969.	1842	—	×	—	—
49° 120°	S.E.	CAS, SHANNON, LITTLE ELI, BIG ELI Sinmax Mines Ltd. W. S. Read. March 4, 1969.	1785	—	×	×	—
49° 120°	N.W.	CATHY, TINA, DOUG Consteel Explorations Ltd. A. R. Colby. June 2, 1969.	1945	—	—	—	×
49° 120°	S.W., S.E.	CUMONT PROPERTY (BEM, LEMON, SENORITA) Cumont Mines Ltd. J. G. Baird. March 7, 1969.	1776	—	×	—	—
49° 120°	S.W.	CUMONT PROPERTY (ELEPHANT, HAMILTON, COPPER CLIFF, DOUG) Cumont Mines Ltd. J. G. Baird. April 29, 1969.	1855	—	×	—	—
49° 120°	S.W., S.E.	CUMONT PROPERTY (ELEPHANT, VIRGINIA, AUTOMATIC, NELSON) Cumont Mines Ltd. J. G. Baird. April 29, 1969.	1985A	—	×	—	—
49° 120°	S.W., S.E.	CUMONT PROPERTY (VIRGINIA, AUTOMATIC, NELSON, KENLEY) Cumont Mines Ltd. F. Lee and R. H. Seraphim. April 29, 1969.	1985B	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 120°	S.W., S.E.	CUMONT PROPERTY (VIRGINIA, AUTOMATIC, NELSON) Cumont Mines Ltd. J. G. Baird and R. O. Crosby. April 29, 1969.	1987A	—	×	—	—
49° 120°	S.W., S.E.	CUMONT PROPERTY (VIRGINIA, AUTOMATIC, KENLEY) Cumont Mines Ltd. F. Lee and R. H. Seraphim. April 29, 1969.	1987B	—	×	—	—
49° 120°	S.E.	CY Thor Explorations Ltd. A. R. Bullis. April 23, 1969.	1867	—	×	—	—
49° 120°	S.W.	DEEP, DEN Similkameen Mining Co. Ltd. J. McCue. March 4, 1969.	1773	—	×	×	—
49° 120°	S.W.	DON A.G.N. Syndicate. Glenn R. Clark. February 3, 1969.	1744	—	—	×	—
49° 120°	N.W.	DOTE Dawood Mines Ltd. W. S. Read. May 13, 1969.	1910	—	—	×	—
49° 120°	N.E.	EDIE Pageant Mines Ltd. .... February 27, 1969.	1782	—	—	—	×
49° 120°	N.E.	ELN Canwex Explorations Ltd. D. W. Smellie. April 30, 1969.	1833	—	—	×	—
49° 120°	N.E.	EMPRESS Anaconda American Brass Ltd. Roderick Macrae. August 19, 1969.	2008	—	—	×	×
49° 120°	N.E.	EMPRESS Anaconda American Brass Ltd. Roderick Macrae. August 19, 1969.	2036	—	—	×	—
49° 120°	N.E.	FIX, PET, TOP Quality Exploration Corporation. J. G. Simpson and R. G. Jury. March 13, 1969.	1800	—	×	—	×
49° 120°	N.E.	FIX, KEN, DUKE, ROSSO Quality Exploration Corporation. R. G. Jury. October 2, 1969.	2005	—	×	—	—
49° 120°	S.E., N.E.	GE, VI Great Slave Mines Ltd. D. R. Cochrane. November 27, 1968.	1721	—	×	—	—
49° 120°	N.W.	HALO, BROATCH, RAM Norranco Mining & Refining Co. Ltd. D. R. Cochrane and J. Cerne. May 7, 1969.	1827	—	×	—	—
49° 120°	N.W.	HH, MIX, 3 WAY Aspen Grove Mines Ltd. D. L. Hings. May 23, 1969.	1850	—	×	—	—
49° 120°	S.E.	ILSE Aurus Mining Ltd. E. M. Wilson. May 29, 1969.	1904	—	×	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 120°	N.E.	KIP, SLIM Largo Mines Ltd. M. D. Kierans and T. Rolston. September 10, 1969.	2034	—	—	×	—
49° 120°	N.E.	KOM Largo Mines Ltd. M. D. Kierans and T. Rolston. September 10, 1969.	1946	—	—	×	—
49° 120°	S.E.	LEE A.G.N. Syndicate. Glenn R. Clark. January 19, 1969.	1754	—	—	×	—
49° 120°	N.E.	MAL, CHAL Consolidated Skeena Mines Ltd. J. B. Boniwell. November 7, 1968.	1718	—	×	—	—
49° 120°	N.E.	MALACHITE, MAL, TOE, BOOT, WEN, HN Consolidated Skeena Mines Ltd. J. E. White. July 17, 1969.	1953	—	—	—	×
49° 120°	S.W., S.E.	MARQUIS OF LORNE Noranda Exploration Co., Ltd. B. O. Brynelsen and J. D. Knauer. May 2, 1969.	1840	—	—	×	—
49° 120°	S.W.	MJ, HONDA, LMR Michael E. Jorgensen. D. G. Leighton and R. B. Stokes. July 3, 1969.	1930	—	—	×	—
49° 120°	S.W.	MONEY, OREGON, MICHIGAN, PEARCE William Davison and Alexander Moyes-Wann. ———— September 8, 1969.	1939	—	—	—	×
49° 120°	S.W., S.E.	OX, SUN, SOB Kechika Mines Ltd. G. E. White, D. R. Cochrane, and James Cerne. May 7, 1969.	1822	—	×	—	—
49° 120°	N.W.	PINE, REG, TL Blue Gulch Explorations Ltd. A. C. Skerl. June 11, 1969.	1857	—	—	×	—
49° 120°	N.E.	REX, RONDA Cairn Mines Ltd. D. L. Hings. August 4, 1969.	1950	—	×	—	—
49° 120°	N.W.	ROADBLOCK E. O. Chisholm. T. L. Sadlier-Brown and E. O. Chisholm. July 29, 1969.	1928	—	—	×	—
49° 120°	N.W.	SKI Chataway Exploration Co. Ltd. J. E. Mekarski and S. W. Wright. February 11, 1969.	1752	—	×	—	—
49° 120°	S.E.	SOB Aurus Mining Ltd. E. M. Wilson. September 11, 1969.	2032	—	×	×	—
49° 120°	S.W.	T Anchor Mines Ltd. J. G. Baird. February 10, 1969.	1774	—	×	—	—
49° 120°	S.W.	WILMAC, NAC, MAC Can West Investments Ltd. D. R. Cochrane. May 14, 1969.	1852	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
49° 121°	S.W.	EMPRESS Noranda Exploration Co., Ltd. B. O. Brynelsen. May 26, 1969.	1879	—	×	×	—
49° 121°	N.E.	GOLD, SILVER Courage Exploration Ltd. D. K. Mustard. February 10, 1969.	1791	×	—	×	—
49° 121°	S.E.	GIANT, BEA Kelso Explorations Ltd. C. B. Selmser. April 15, 1969.	1869	—	×	—	—
49° 121°	S.E.	GIANT, BEA Kelso Explorations Ltd. J. A. Mitchell. August 27, 1969	1998	—	—	×	—
49° 121°	S.E.	GIANT Kelso Explorations Ltd. C. B. Selmser. August 4, 1969.	2031	—	×	—	—
49° 121°	S.E.	MILL Kelso Explorations Ltd. C. B. Selmser and I. F. Morton. June 30, 1969.	1992	—	×	—	—
49° 121°	S.W.	SWEDE Kelso Explorations Ltd. I. F. Morton and J. A. Mitchell. February 21, 1969.	1801	—	×	—	—
49° 122°	N.E.	MO Largo Mines Ltd. D. R. Cochrane. May 2, 1969.	1856	—	×	—	—
49° 124°	N.E.	NIC Noranda Exploration Co., Ltd. B. O. Brynelsen and J. D. Knauer. May 12, 1969.	1864	—	—	×	—
49° 124°	N.E.	SEEL, AB Cambrian Explorations Ltd. P. G. Cross and D. P. Arscott. June 4, 1969.	1932	—	—	×	—
49° 124°	N.E.	VENUS, ST. JOSEPH, STRIKE, TIE Sweepstake Mines Ltd. D. G. Leighton and R. B. Stokes. December 5, 1968.	1716	×	×	×	—
49° 124°	N.E.	VENUS, ST. JOSEPH, STRIKE, TIE Sweepstake Mines Ltd. W. A. Finney and N. R. Paterson. April 24, 1969.	1807	—	×	—	—
49° 125°	S.W.	CREAM, BEAR Cream Silver Mines Ltd. R. H. D. Philp. March 25, 1969.	1884	×	—	—	—
49° 125°	N.E.	FAITH, RIM Falconbridge Nickel Mines Ltd. J. J. McDougall. November 7, 1969.	2053	—	×	—	—
49° 125° 49° 126°	S.W. S.E.	MN Vargas Mines Ltd. R. H. D. Philp. August 7, 1969.	1969	×	—	×	—
49° 125°	S.E.	VENT Raw Materials Ventures Inc. W. G. Stevenson. May 29, 1969	1902	×	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 115°	N.W.	MAG P. R. Swainson. Orhan Baykal. June 27, 1969.	2048	×	—	—	—
50° 116°	S.E.	COPPER KING, IMPERIAL, NORTH LIGHT Jumbo Mines Ltd. E. P. Sheppard and R. H. Parker. July 22, 1969.	1977	—	×	—	—
50° 116°	S.E.	MELODY North Canadian Oils Ltd. J. G. Baird. June 20, 1969.	1897	—	×	—	—
50° 116°	N.W.	PLACER-MINING LEASES 270 to 277 Estey Agencies Ltd. and Dillingham Corporation of Canada Ltd. J. M. Black. November 29, 1968.	1711	—	×	—	—
50° 116°	N.W.	PLACER-MINING LEASES 278 to 281 Estey Agencies Ltd. and Dillingham Corporation of Canada Ltd. J. M. Black. November 29, 1968.	1712	—	×	—	—
50° 116°	N.W.	PLACER-MINING LEASES 282 to 284 Estey Agencies Ltd. and Dillingham Corporation of Canada Ltd. J. M. Black. November 29, 1968.	1713	—	×	—	—
50° 116°	N.W.	PLACER-MINING LEASES 303 to 307, 309, 310, 351 Canadian Johns-Manville Co. Ltd. J. R. Kerr. November 6, 1969.	2090	—	×	×	—
50° 116°	N.E.	PLACER-MINING LEASES 311 to 314, 354 to 357 Canadian Johns-Manville Co. Ltd. J. R. Kerr. October 14, 1969.	2006	—	×	×	—
50° 116°	S.E.	YORNOC Dresser Industries, Inc. A. C. A. Howe. September 17, 1969.	2051A	—	×	—	—
50° 116°	S.E.	YORNOC Dresser Industries, Inc. J. S. Carter. September 17, 1969.	2051B	—	×	—	—
50° 117°	S.E.	KAT D. W. Smellie. D. W. Smellie. October 23, 1969.	2037	—	—	×	—
50° 117°	S.E.	OLE Senate Mining and Exploration Ltd. A. A. Burgoyne. August 14, 1969.	1997	—	—	×	—
50° 118° 49° 118°	S.E. N.E.	DIXIE South Oak Mines Ltd. Tom Rolston. September 29, 1969.	2023	—	—	—	×
50° 118°	N.E.	VIC, TOR Consolidated Gem Explorations Ltd. W. Meyer and J. M. Dawson. September 24, 1969.	2079	×	—	—	—
50° 118°	N.E.	VIC, TOR Consolidated Gem Explorations Ltd. J. M. Dawson. September 24, 1969.	2080	×	—	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 118°	N.E.	VIC, TOR Consolidated Gem Explorations Ltd. F. D. Forgeron. September 24, 1969.	2081	—	—	×	—
50° 119°	N.E.	BLUENOSE, KAL Tranquillity Explorations Ltd. D. L. Hings. September 26, 1969.	2021	—	×	—	—
50° 119°	S.E.	DCK, X1, ANNE, GOLD, COPPER King Graybarr Mines Ltd. D. R. Cochrane, James Cerne, and G. E. White. October 10, 1969.	2000	—	×	—	—
50° 119°	N.E.	ED Negas Mining and Exploration Ltd. .... October 16, 1969.	2017	—	—	—	×
50° 119°	S.E.	HUGAL Hudson Bay Exploration & Development Co. Ltd. J. G. Baird and R. O. Crosby. August 27, 1969.	2042	—	×	—	—
50° 119°	S.W.	NIGHT OWL Texas Gulf Sulphur Company. A. J. Schmidt. April 16, 1969.	1896	—	—	×	—
50° 119°	S.E.	NOVA, BUCK, TICK Agricola Mines Ltd. G. P. E. White. April 11, 1969.	1817	—	—	×	—
50° 120°	S.W.	ALAMEADA Zulco Explorations Ltd. J. G. Baird and R. Crosby. April 11, 1969.	1795	—	×	—	—
50° 120° 50° 121°	S.W. S.E.	ALAMO, SAN JOSE D. A. Chapman and Associates Ltd. G. E. White, James Cerne, and D. R. Cochrane. April 24, 1969.	1828	—	×	—	—
50° 120°	S.W.	AM, IDE Canadian Superior Exploration Ltd. R. A. Dujardin and A. P. Fawley. December 6, 1968.	1757	×	×	×	—
50° 120°	N.W.	BURL Burlington Mines Ltd. D. L. Hings. October 1, 1969.	1996	—	×	—	—
50° 120°	N.E.	C, PIN, A, CLE Pinnacle Mines Ltd. J. B. Prendergast. November 13, 1968.	1746	—	—	×	—
50° 120°	S.W.	CAL, AUG Cannoo Mines Ltd. D. R. Cochrane. May 23, 1969.	1881	—	×	—	—
50° 120°	S.W.	CHATAWAY King Resources Company. W. Meyer and M. C. Robinson. November 1, 1968.	1790	×	—	—	—
50° 120°	N.W.	COPPER CREEK MERCURY PROPERTY Newmont Mining Corporation of Canada Ltd. J. A. Coope. February 12, 1969.	1753	×	—	×	—
50° 120°	S.W.	CROWN Torwest Resources (1962) Ltd. W. G. Hainsworth. April 11, 1969.	1826	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 120°	N.W.	DANSEY (JB, MIKE, BILL) Noranda Exploration Co., Ltd. J. D. Knauer and R. C. Heim. July 7, 1969.	1934	—	—	×	—
50° 120°	N.W.	DANSEY (JB, TOM, IG) Noranda Exploration Co., Ltd. J. D. Knauer and R. C. Heim. July 7, 1969.	1935	—	—	×	—
50° 120°	S.E.	DL Royal Canadian Ventures Ltd. N. B. Vollo. October 9, 1969.	1995	×	×	×	—
50° 120°	S.W.	DUDE, LEE, BLUEBERRY, BUCK, F&W R. P. McBean and Mamit Lake Mining Ltd. E. O. Chisholm. April 29, 1969.	1851A	—	—	×	—
50° 120°	S.W.	DUDE, LEE, BLUEBERRY, BUCK, F&W R. P. McBean and Mamit Lake Mining Ltd. E. O. Chisholm. April 29, 1969.	1851B	—	×	—	—
50° 120°	S.W.	DUDE, ED Mamit Lake Mining Ltd. B. Mottershead and R. H. D. Philp. April 25, 1969.	1895	—	×	×	—
50° 120°	S.W., N.W.	EDEN, JOB, CL Vananda Explorations Ltd. J. G. Baird. April 14, 1969.	1868	—	×	—	—
50° 120°	S.W.	EZRA New Indian Mines Ltd. and Vananda Explorations Ltd. J. G. Baird. April 14, 1969.	1976	—	×	—	—
50° 120°	S.W.	EZRA New Indian Mines Ltd. and Vananda Explorations Ltd. J. G. Baird. September 19, 1969.	1976	—	×	—	—
50° 120°	N.W.	ELLA Highland Valley Mines Ltd. A. A. Ablett. September 23, 1969.	2075	—	—	—	×
50° 120°	N.W.	ELLA Highland Valley Mines Ltd. C. J. Coveney. September 23, 1969.	2076	×	—	—	—
50° 120°	N.W.	ELLA Highland Valley Mines Ltd. J. G. Baird and R. O. Crosby. September 23, 1969.	2077	—	×	—	—
50° 120°	S.W.	ETTA, PEG, PAQUET Noranda Exploration Co., Ltd. D. K. Fountain. February 5, 1969.	1777	—	×	—	—
50° 120°	S.W.	GAYLE, BRIDGET Craigmont Mines Ltd. R. J. Young. March 13, 1969.	1767	—	×	—	—
50° 120°	S.W.	GAZA (NAT, ANN, GAP) Gaza Mines Ltd. G. H. McLeod. June 10, 1969.	1882	—	—	—	×
50° 120°	N.W.	HILLTOP, SAGE, KAMLOOPS Royal Canadian Ventures Ltd. N. B. Vollo. January 24, 1969.	1751	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 120°	N.W.	HILLTOP, SAGE, KAMLOOPS Royal Canadian Ventures Ltd. J. A. Woodard and N. B. Vollo. August 26, 1969.	1951	—	×	—	—
50° 120°	N.E.	IM, HAWTHORNE, DISPATCHER Royal Canadian Ventures Ltd. N. B. Vollo. January 28, 1969.	1748	—	×	×	—
50° 120°	N.W.	JEAN Kalco Valley Mines Ltd. J. P. Matthews and D. S. Meredith. October 15, 1969.	2065	—	—	—	×
50° 120°	S.W.	JERICHO, GAP, GNAT, BUD, JAY Tremar Mines Ltd. J. B. Prendergast and A. R. Dodds. October 9, 1969.	2052	—	×	—	—
50° 120°	S.W.	JERICHO, MAE, HATCH J. Miekle. D. L. Hings. October 16, 1969.	2055	—	×	—	—
50° 120°	S.W.	JOE, BET Highland Valley Mines Ltd. J. G. Baird and F. Lee. September 23, 1969.	2012	—	×	—	—
50° 120°	N.W.	KL Royal Canadian Ventures Ltd. N. B. Vollo. August 26, 1969.	2001A	—	×	—	—
50° 120°	N.W.	KL Royal Canadian Ventures Ltd. N. B. Vollo. August 26, 1969.	2001B	×	×	×	—
50° 120° 50° 121°	N.W. N.E.	KRAIN, DW Noranda Exploration Co., Ltd. B. O. Brynelsen and J. D. Knauer. June 11, 1969.	1917	—	—	×	—
50° 120°	S.W.	KR&K Nicola Copper Mines Ltd. J. G. Baird and R. O. Crosby. October 23, 1969.	2064	—	×	—	—
50° 120° 50° 121°	N.W. N.E.	LE Noranda Exploration Co., Ltd. D. K. Fountain. September 22, 1969.	2018	—	×	—	—
50° 120° 50° 121°	N.W. N.E.	LE, DO, GO Noranda Exploration Co., Ltd. D. K. Fountain. September 22, 1969.	2091	—	×	—	—
50° 120°	N.W.	LES, CHES, DE Criss Creek Mines Ltd. H. B. Forman and B. A. Fowlie. October 8, 1969.	2033	—	—	×	—
50° 120°	S.W.	MAKELSTIN Acaplomo Mining & Development Co. Ltd. S. F. Kelly. November 28, 1968.	1735	—	×	×	—
50° 120° 50° 121°	S.W. S.E.	MARB, CROWN Torwest Resources (1962) Ltd. G. E. White and D. R. Cochrane. July 16, 1969.	1923	—	×	—	—
50° 120°	N.W.	MERC Jason Oils Ltd. J. M. Alston. September 12, 1968.	1789	×	—	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 120°	N.W.	MERC Savanna Creek Gas & Oil Ltd. L. G. Morrison. June 19, 1969.	1914	×	—	×	—
50° 120°	N.W.	MERC Savanna Creek Gas & Oil Ltd. L. G. Morrison. August 21, 1969.	1989	×	—	×	—
50° 120°	S.W.	MOUSE, TIP Nicola Lake Mining Co. Ltd. J. A. Mitchell. November 8, 1968.	1798	×	×	—	—
50° 120°	S.W.	NIC Yvonne L. Cressy. G. F. Cressy and L. Spahan. May 26, 1969.	1839	—	—	—	×
50° 120°	S.W.	OK, DONNY, AL, MAD ARAB Cambridge Mines, Ltd. S. L. Sandner and D. R. Cochrane. March 31, 1969.	1911	—	×	×	—
50° 120°	S.W.	PRICE, RUBY Pathfinder Uranium & Nickel Mines Ltd. B. Mottershead and R. H. D. Philp. April 14, 1969.	1937A	—	×	×	—
50° 120°	S.W.	PRICE, RUBY Pathfinder Uranium & Nickel Mines Ltd. W. A. Finney and N. R. Paterson. April 14, 1969.	1937B	—	×	—	—
50° 120°	S.E.	RANCHER, PEPSI, OUT Noranda Exploration Co., Ltd. B. O. Brynelsen and J. T. Walker. August 19, 1969.	1972	—	×	—	—
50° 120°	N.W.	RM, DAB Alwin Mining Co. Ltd. J. J. Crowhurst. January 15, 1969.	1787	—	—	×	—
50° 120°	S.W.	SPA, SKAT, SKU, ALTA Mercury Explorations Ltd. R. E. Chaplin. April 3, 1969.	1829	—	×	—	—
50° 120°	S.W.	VAL Vanguard Explorations Ltd. A. R. Allen. February 19, 1969.	1799	—	×	—	—
50° 120°	N.W., S.W.	X-Y Comet-Krain Mining Corp. Ltd. D. W. Pringle. July 22, 1969.	2024	—	—	×	—
50° 121°	S.E.	ACT Taseko Mines Ltd. N. R. Paterson. December 2, 1968.	1781A	—	×	—	—
50° 121°	S.E.	ACT Taseko Mines Ltd. H. D. Forman. December 2, 1968.	1781B	—	—	×	×
50° 121°	S.E.	BIN, DDH Cominco Ltd. R. J. Nicholson and J. Richardson. September 30, 1969.	2087	×	—	×	—
50° 121°	S.E.	BIN, DDH Cominco Ltd. J. M. Hamilton and J. Richardson. September 30, 1969.	2088	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 121°	S.E.	BIN, DDH Cominco Ltd. R. J. Nicholson and J. Richardson. September 30, 1969.	2089	—	—	—	×
50° 121°	S.E.	BIN Cominco Ltd. J. M. Hamilton and W. T. Irvine. August 12, 1969.	1944A	—	×	—	—
50° 121°	S.E.	BIN Cominco Ltd. R. J. Nicholson and J. Richardson. August 12, 1969.	1944B	—	—	—	×
50° 121°	S.E.	BIN, BUNNY Cominco Ltd. R. J. Nicholson and M. D. McInnis. September 23, 1969.	2085	×	—	—	—
50° 121°	S.E.	BIN, BUNNY Cominco Ltd. J. M. Hamilton and J. Richardson. September 23, 1969.	2086	—	×	—	—
50° 121°	S.E.	BIN, B Noranda Exploration Co., Ltd. B. O. Brynelsen, J. D. Knauer, and J. T. Walker. August 12, 1969.	1973	—	—	×	—
50° 121°	N.E.	ED Rolling Hills Copper Mines Ltd. J. G. Baird and A. P. Fawley. December 18, 1968.	1740	—	×	—	—
50° 121°	N.E.	EZZ Alwin Mining Co. Ltd. J. J. Crowhurst. June 27, 1969.	1919	—	—	×	—
50° 121°	N.E.	GC A. A. Ablett. —————— August 28, 1969.	1988	—	—	—	×
50° 121°	S.E.	HIGHPOINT (DEB) Highpoint Mines Ltd. J. G. Baird and R. O. Crosby. June 24, 1969.	1898	—	×	—	—
50° 121°	S.E., N.E.	JAC, KAM, CM, MER Consolidated Gem Explorations Ltd. J. G. Baird and R. O. Crosby. May 9, 1969.	1837	—	×	—	—
50° 121°	N.E.	JACK Noranda Exploration Co., Ltd. D. K. Fountain. July 11, 1969.	1915	—	×	—	—
50° 121°	S.E.	JAN, HI McIntyre Porcupine Mines Ltd. J. W. MacLeod. January 23, 1969.	1739	—	×	×	—
50° 121°	N.E.	JOE Trumpeter Mines Ltd. A. G. Hodgson. May 6, 1969.	1832	—	×	—	—
50° 121°	N.E.	JOE Trumpeter Mines Ltd. A. G. Hodgson. May 6, 1969.	1860	—	—	×	—
50° 121°	S.E.	JT, TH, LD Cominco Ltd. J. M. Hamilton and J. Richardson. October 27, 1969.	2119	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 121°	S.E.	JT, TH, LD Cominco Ltd. R. J. Nicholson and J. Richardson. October 24, 1969.	2120	×	—	—	—
50° 121°	N.E.	KELLY, PAT, FOX Trumpeter Mines Ltd. A. A. Johnson and S. J. Pedley. April 22, 1969.	1853	—	—	×	—
50° 121°	N.E.	KELLY, WREN Trumpeter Mines Ltd. W. K. Lee. April 22, 1969.	1806	—	×	—	—
50° 121°	S.E., N.E.	KEY, PLUS, MB Pyramid Mining Co. Ltd. J. G. Baird. November 27, 1968.	1727	—	×	—	—
50° 121°	S.E.	LOREX Northlode Explorations Ltd. H. Wober. March 28, 1969.	1797	—	×	×	—
50° 121°	N.E.	MAGGIE MINE (BETH) Bethlehem Copper Corporation Ltd. R. J. Nethery and H. G. Ewanchuk. September 2, 1969.	2020	×	—	—	—
50° 121°	S.E.	MEL Bomarc Mining Co. Ltd. A. R. Bullis. October 28, 1969.	2041	—	—	×	—
50° 121°	N.E.	NEL Canwex Explorations Ltd. E. D. Dodson. September 11, 1969.	2043	×	—	×	—
50° 121°	N.E.	NIM New Indian Mines Ltd. F. J. Hemsworth. June 30, 1969.	1890	—	—	—	×
50° 121°	N.W.	RICKHILL Dalex Mines Ltd. S. A. Mouritsen. May 26, 1969.	1918	—	×	—	—
50° 121°	N.E.	TAC, SNO Major Mines Ltd. R. G. Jury. March 19, 1969.	1986	—	—	—	×
50° 121°	S.E.	TAR Highland Valley Mines Ltd. C. Coveney and F. Lee. September 23, 1969.	2011	×	—	—	—
50° 121°	N.E.	TIP Great Northern Petroleums & Mines Ltd. R. Caven, P. Bradshaw, and L. Reed. August 19, 1969.	2025	—	×	×	—
50° 121°	S.E.	TN, JT, LD Croydon Mines Ltd. J. W. Hogan. October 28, 1969.	2058	—	—	×	—
50° 121°	S.E.	ZEN, MAC Zenith Mining Corp. Ltd. M. P. Stadnyk. February 7, 1969.	1722	—	—	×	—
50° 122°	N.E.	DEE Canadian Johns-Manville Co. Ltd. J. R. Kerr. May 22, 1969.	1862	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 125°	S.E.	CHAL, NORM, ALLEN, BB, STAR Calmac Mines Ltd. J. A. Mitchell and David G. Mark. August 25, 1969.	2004	—	—	×	—
50° 125°	S.W.	McBELL Teknol Mining Co. Ltd. J. Sirola. May 12, 1969.	1830	—	—	—	×
50° 126°	S.W.	BON Brettland Mines Ltd. G. E. White, James Cerne, and D. R. Cochrane. May 5, 1969.	1821	—	×	—	—
50° 126°	S.E.	BOYES, KEVIN, DENNIS, GEORGE Bethlehem Copper Corporation Ltd. W. M. Sharp. September 16, 1969.	1993	×	—	—	—
50° 126°	S.E.	DAVIS Falconbridge Nickel Mines Ltd. S. N. Charteris. May 22, 1969.	1844	—	×	—	—
50° 126°	S.E.	ROONEY Newconex Canadian Exploration Ltd. P. W. Richardson. June 6, 1969.	1859	—	—	×	—
50° 127° 50° 128°	N.W. N.E.	BERG Continental Cinch Mines Ltd. R. H. D. Philp. February 17, 1969.	1771	×	—	×	—
50° 127°	S.E.	BOB, MIKE (BOB GROUP) Great Northern Petroleums & Mines Ltd. T. Rolston, R. H. Parker, D. G. Mark, and M. D. Kierans. August 11, 1969.	1982A	—	×	×	—
50° 127°	S.E.	BOB, MIKE (MIKE GROUP) Largo Mines Ltd. T. Rolston, R. H. Parker, D. G. Mark, and M. D. Kierans. August 11, 1969.	1982B	—	×	×	—
50° 127°	N.W.	BON, BID Altair Mining Corporation Ltd. E. D. Dodson. October 1, 1968.	1720	—	—	×	—
50° 127°	N.W.	CAP, BILL, TA, AT Murray Pezim and Central Point Resources Ltd. R. H. D. Philp. November 20, 1968.	1728	—	—	×	—
50° 127° 50° 128°	N.W. N.E.	CEE, KAYE, JACK, RICK, MAY, JILL Holberg Mines Ltd. G. E. White, James Cerne, and D. R. Cochrane. February 27, 1969.	1765	—	×	—	—
50° 127°	S.E.	CLANCY, O'CLANCY, IRON KNOB, JUNE Alice Lake Mines Ltd. H. H. Cohen. March 10, 1969.	1885	—	×	—	—
50° 127°	N.W., N.E.	DEM, HARD Pathfinder Uranium & Nickel Mines Ltd. B. Mottershead and R. H. D. Philp. October 18, 1968.	1717	×	×	×	—
50° 127°	N.W.	DIK Laura Mines Ltd. E. D. Dodson. February 4, 1969.	1738	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 127°	N.E.	DON, PAM, KEN, PAL, TAP Copper Giant Mining Corporation Ltd. R. H. D. Philp. December 13, 1968.	1742	—	—	×	—
50° 127°	N.E.	ED, BOB, MIKE Arlington Silver Mnies Ltd. T. Rolston, R. H. Parker, D. G. Mark, and M.D. Kierans. August 11, 1969.	1943	—	×	×	—
50° 127°	N.W., N.E.	FOR, BILL Forest Kerr Mines Ltd. R. H. D. Philp. December 12, 1968.	1726	—	—	×	—
50° 127°	N.W.	GARY Highpoint Mines Ltd. E. D. Dodson. May 21, 1969.	1838	—	—	×	—
50° 127°	N.W.	GB No. 1 GROUP Tro-Buttle Exploration Ltd. G. A. Dirom. December 20, 1968.	1731	—	—	×	—
50° 127°	N.W.	GB No. 2 GROUP Tro-Buttle Exploration Ltd. G. A. Dirom. December 20, 1968.	1732	—	—	×	—
50° 127° 50° 128°	N.W. N.E.	HOL Estey Agencies Ltd. W. G. Stevenson. February 5, 1969.	1770	×	×	—	—
50° 127°	N.W.	HW, WIT, VIN, PLUG Continental Cinch Mines Ltd. R. H. D. Philp. January 22, 1969.	1736	×	—	×	—
50° 127°	S.E.	KAS Vargas Mines Ltd. B. Mottershead and R. H. D. Philp. April 23, 1969.	1926	×	—	×	—
50° 127°	N.W.	KW D. K. Bragg. M. J. Young. June 27, 1969.	1929	×	—	×	—
50° 127°	N.W.	LUK Secondo Mining Ltd. R. E. Shields and J. R. Billingsley. April 30, 1969.	1818	—	×	—	—
50° 127°	S.E.	MAGNETIC, MAYNARD, IRON, TROUT Quatsino Copper-Gold Mines Ltd. H. H. Cohen. February 17, 1969.	1760	—	×	—	—
50° 127°	N.W.	MOR, WOB Frank Onucki and Don Bragg. M. J. Young. December 20, 1968.	1719	×	—	×	—
50° 127°	N.W.	PAT Tro-Buttle Exploration Ltd. G. A. Dirom. January 28, 1969.	1759	—	—	×	—
50° 127°	N.E.	TAP, PENNY, DON, PAM, KEN (KEF GROUP) Murray Pezim and Secondo Mining Ltd. R. E. Shields and J. R. Billingsley. January 15, 1969.	1780	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
50° 127°	N.W.	TI, MOM, BUD Acheron Mines Ltd. B. Mottershead and R. H. D. Philp. January 16, 1969.	1762	×	—	×	—
50° 127°	N.E.	TIE, SUSAN Cominco Ltd. S. J. Pedley. June 20, 1969.	1907	—	—	—	×
50° 127°	N.W.	TUB Brettland Mines Ltd. R. H. D. Philp. January 17, 1969.	1749	—	—	×	—
50° 127°	N.E.	UTA, ATU, BON Galleon Explorations Ltd. R. K. Germundson. April 10, 1969.	1815	—	—	×	—
50° 127°	N.W.	WIZ, LOT, BELLE Swim Lake Mines Ltd. .... January 10, 1969.	1743	—	—	—	×
50° 128°	N.E.	AAA Spartan Explorations Ltd. W. J. Roberts and C. L. Smith. February 17, 1969.	1865A	—	—	×	—
50° 128°	N.E.	AAA Spartan Explorations Ltd. W. J. Roberts and C. Smith. February 17, 1969.	1865B	×	—	—	—
50° 128°	N.E.	AIRD Utah Construction & Mining Co. G. A. Noel. June 30, 1969.	1909	×	—	×	—
50° 128°	N.E.	CS Quintana Minerals Corporation. R. B. Stokes. May 28, 1969.	1847	×	—	×	—
50° 128°	S.E.	KAINS Utah Construction & Mining Co. K. B. McHale. August 25, 1969.	1957	×	—	×	—
51° 118°	S.E.	JOHN, NORA (MOUNT COPELAND MINE AREA) King Resources Co. L. W. Vigrass. March 24, 1969.	1788	×	—	—	—
51° 118° 50° 118°	S.E. N.E.	JS, JR, GC, JT, ETC. (MOUNT COPELAND MINE AREA) King Resources Co. K. L. Daughtry and M. C. Robinson. September 26, 1968.	1792	—	—	×	—
51° 118°	S.E.	JS, JR, GC, JT, ETC. (MOUNT COPELAND MINE AREA) Stampede Oils Ltd. F. D. Forgeron. September 26, 1968.	1793	—	—	×	—
51° 118°	S.E.	JS, JR, GC, JT, ETC. (MOUNT COPELAND MINE AREA) Stampede Oils Ltd. G. A. Wilson. September 26, 1968.	1794	×	—	—	—
51° 118°	S.W.	SHUSWAP, GN Great Northern Petroleums and Mines Ltd. J. G. Baird. September 25, 1968.	1768	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
51° 119°	S.W.	BEX, RAN, DUN Barriere Explorations Ltd. Robert Bennett. May 21, 1969.	1870	—	—	—	×
51° 119°	S.W.	BIRMOLY Secondo Mining Ltd. J. G. Baird. August 11, 1969.	1938	—	×	—	—
51° 119°	N.W.	FH Royal Canadian Ventures Ltd. N. B. Vollo. August 5, 1969.	1924	—	—	×	—
51° 119°	S.W.	JACK Westbrun Exploration Ltd. A. G. MacKenzie. October 23, 1969.	2030	×	—	—	—
51° 119°	S.W.	PETE, RAM, RANJO Aquarius Investments Ltd. C. T. Pasieka and J. B. Prendergast. June 4, 1969.	1936A	—	×	×	—
51° 119°	S.W.	PETE, RANJO, MARTY, THOR Aquarius Investments Ltd. D. R. Cochrane. June 4, 1969.	1936B	—	×	—	—
51° 119°	S.W.	RENNING, GRIZZLY, FERN, KEN Souvenir Mines Ltd. A. G. MacKenzie. August 14, 1969.	2230	×	×	—	—
51° 119°	S.W.	RENNING, GRIZZLY, FERN, KEN Westbrun Exploration Ltd. J. Yanchula. August 15, 1968.	2231	—	×	—	—
51° 119°	S.W.	RENNING, GRIZZLY, FERN, KEN Westbrun Exploration Ltd. O. Baykal. August 15, 1968.	2232	×	—	—	—
51° 119°	N.W.	REXSPAR, (MY, RAY) Consolidated Rexspar Minerals & Chemicals Ltd. T. Gledhill and D. K. Fountain. December 13, 1968.	1737	—	×	—	—
51° 119°	N.W.	REXSPAR (TOP, PA, RADIO) Consolidated Rexspar Minerals & Chemicals Ltd. P. Pisani. July 15, 1969.	1912A	—	—	—	×
51° 119°	N.W.	REXSPAR (PA, RADIO) Consolidated Rexspar Minerals & Chemicals Ltd. F. D. Forgeron. July 15, 1969.	1912B	—	—	×	—
51° 119°	N.W.	REXSPAR (JAM, REX, JANE) Consolidated Rexspar Minerals & Chemicals Ltd. P. Pisani. July 31, 1969.	1913	—	—	—	×
51° 119°	S.W.	STAR, ROB, TOM, COUGAR, BOBCAT Sinmax Mines Ltd. W. S. Read. October 15, 1968.	1783	—	×	×	—
51° 119°	S.W.	STAR, ROB, COUGAR, BOBCAT, TIE Sinmax Mines Ltd. J. M. Dawson. October 16, 1969.	2093	×	—	—	—
51° 120°	N.E., S.E.	PC Anaconda American Brass Ltd. P. E. Hirst. February 7, 1969.	1750	—	×	—	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
51° 120°	N.E., N.W.	RO, SO Anaconda American Brass Ltd. R. Macrae and T. A. Conto. August 18, 1969.	1966	—	×	—	—
51° 121°	S.E.	BD, VB Amax Exploration, Inc. H. W. Sellmer, B. K. McKnight, R. F. Horsnail, and J. F. Allan. December 9, 1968.	1723	×	×	×	—
51° 121°	N.E.	FG Royal Canadian Ventures Ltd. N. B. Vollo. May 26, 1969.	1858	—	×	—	—
51° 121°	S.E.	JOE, GI Rayfield Mining Co. Ltd. J. G. Baird. February 10, 1969.	1758	—	×	—	—
51° 121°	N.E.	PEACH Coranex Ltd. J. R. Woodcock. December 13, 1968.	1734	—	—	×	—
51° 121°	N.E.	SKULL, STAN, MAC Canway Explorations Ltd. D. R. Cochrane. June 12, 1969.	1883	—	—	×	—
51° 121°	N.E.	SL Royal Canadian Ventures Ltd. N. B. Vollo. May 26, 1969.	1834	×	×	×	—
51° 122°	S.W.	APEX, CANDY Roosevelt Mines Ltd. J. F. V. Millar. June 9, 1969.	1916	×	—	×	—
51° 122°	N.W.	FARWELL Chilcotin Silver Mines Ltd. D. R. Cochrane and Alan Scott. August 12, 1969.	1968	—	—	×	—
51° 122°	N.E.	SILVER, KLEIV, MARIE Chilcotin Silver Mines Ltd. J. Cerne, G. White, and D. R. Cochrane. May 26, 1969.	1877	—	×	—	—
51° 122°	N.E.	SILVER, KLEIV Chilcotin Silver Mines Ltd. D. R. Cochrane and Alan Scott. August 12, 1969.	1964	—	—	×	—
51° 123°	S.E.	RH American Smelting & Refining Co. D. H. Olson. January 9, 1969.	1729	—	—	×	—
52° 119°	N.W.	CATHY, WOLF, MAGNET Tournigan Mining Explorations Ltd. J. Cerne, G. E. White, and D. R. Cochrane. July 9, 1969.	2044	—	×	—	—
52° 120° 52° 121°	S.W. S.E.	MAG Royal Canadian Ventures Ltd. N. B. Vollo. May 26, 1969.	1836	—	×	—	—
52° 120°	S.W.	CS, EN Amax Exploration, Inc. D. K. Mustard. November 3, 1969.	2137	—	—	×	—
52° 121°	S.E.	SS Monte Cristo Mines Ltd. J. A. Mitchell. October 23, 1969.	2074	—	×	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
52° 121°	S.W.	WIGGINS CREEK, LUCKY DAWN, HEARTS CONTENT Grandeur Mines Ltd. R. H. D. Philp. July 4, 1969.	2004	—	—	×	—
52° 122°	S.E.	BJ, JP Midnight Consolidated Mines Ltd. D. L. Hings. February 10, 1969.	1756	—	×	—	—
52° 122°	N.E.	BREN, SUMMIT Morocco Mines Ltd. J. G. Baird. March 4, 1969.	1796	—	×	—	—
52° 122°	S.E.	BRENDA, MAYDAY, MAYBE, TELL Ensbrook Mines Ltd. R. H. D. Philp. May 29, 1969.	1873	—	—	×	—
52° 122°	S.E.	D&D D. W. A. Dodd. N. O. Arseneau. January 22, 1969.	1779	—	—	—	×
52° 122°	N.W.	MAG M. S. Caine. A. Berglund and Martin Caine. April 2, 1969.	1824	—	—	×	—
52° 125°	S.E.	MM Anaconda American Brass Ltd. T. A. Conto and R. Macrae. June 3, 1969.	1848	—	×	—	—
52° 125°	S.W.	TEL Anaconda American Brass Ltd. R. Macrae. September 4, 1969.	1955	—	—	×	—
52° 125°	S.W.	TEL Anaconda American Brass Ltd. T. A. Conto and R. Macrae. September 4, 1969.	1958	—	×	—	—
53° 121°	S.W.	FIN, COP Silver-X International Mines Ltd. J. G. Baird. October 16, 1968.	1769	—	×	—	—
53° 122°	S.E.	JB Burdos Mines Ltd. G. E. White, M. V. Maki, and T. Rolston. February 25, 1969.	1761	—	×	×	—
53° 122°	N.E.	LOON Noranda Exploration Co., Ltd. J. D. Knauer, J. T. Walker, and B. O. Brynelsen. September 5, 1969.	1952	—	×	×	—
53° 122°	N.E., S.E.	TP W. R. Bacon (for N.B.C. Syndicate). W. R. Bacon. May 29, 1969.	1849	—	×	×	—
53° 127°	N.E.	FAB Amax Exploration, Inc. T. J. R. Godfrey and A. Gambardella. September 8, 1969.	2003	×	—	×	—
53° 127° 54° 127°	N.E. S.E.	KING, QUEEN, JACK, PINE Falconbridge Nickel Mines Ltd. S. N. Charteris. March 11, 1969.	1809	—	—	×	—
53° 127°	S.E., N.E.	OVP Aston Resources Ltd. D. A. Davidson and R. Woolverton. August 14, 1969.	2026	×	×	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
53° 129°	N.E.	HORSEFLY Texas Gulf Sulphur Co. D. Watson and A. J. Schmidt. April 16, 1969.	1804	—	×	—	—
53° 132°	S.E.	MINO Falconbridge Nickel Mines Ltd. J. J. McDougall. October 9, 1969.	2046A	—	—	×	—
53° 132°	S.E.	MINO Falconbridge Nickel Mines Ltd. J. J. McDougall. October 9, 1969.	2046B	—	—	×	—
53° 132°	S.E.	NRM Nikamor Bidiuk. S. N. Charteris. September 5, 1969.	2015	—	×	—	—
54° 124° 53° 124°	S.W. N.W.	ART Plateau Metals Ltd. D. L. Hings. December 9, 1968.	1733	—	×	—	—
54° 124°	N.E.	HAT W. R. Bacon (for N.B.C. Syndicate). W. R. Bacon. June 10, 1969.	1933	—	×	—	—
54° 124°	S.W.	KID Amax Exploration, Inc. T. J. R. Godfrey. June 23, 1969.	1866	×	—	×	—
54° 125°	S.E.	BONUS Mercury Explorations Ltd. R. E. Chaplin. September 16, 1969.	1979	—	×	—	—
54° 125°	S.E.	CHESS Mercury Explorations Ltd. R. E. Chaplin. September 12, 1969.	2002	—	×	—	—
54° 125°	S.E.	KEN Amax Exploration, Inc. W. Lodder and T. J. R. Godfrey. June 23, 1969.	1871	×	—	×	—
54° 126°	N.W.	ASCOT Texas Gulf Sulphur Co. R. O. Crosby and R. A. Hillman. September 10, 1969.	2139	—	×	—	—
54° 126°	N.W.	ASCOT Texas Gulf Sulphur Co. A. J. Schmidt and G. Podolsky. September 10, 1969.	2140	—	×	—	—
54° 126°	N.W.	ASCOT Texas Gulf Sulphur Co. A. J. Schmidt. September 10, 1969.	2141	—	—	×	—
54° 126°	N.E.	DEL Rip Van Mining Ltd. J. G. Baird. December 19, 1968.	1724	—	×	—	—
54° 126°	N.E.	DEL, LOU Rip Van Mining Ltd. S. J. Hunter. December 19, 1968.	1725	—	—	×	—
54° 126°	N.W.	MERT Tro-Buttle Exploration Ltd. G. A. Dirom. February 19, 1969.	1778	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
54° 126°	N.E.	PRINCE D. Christensen. T. Kallal. October 9, 1969.	2009	—	—	—	×
54° 126°	N.E.	TOPLEY, BABINE, TOTEM Tro-Buttle Exploration Ltd. R. W. Woolverton. October 14, 1969.	2094	×	—	—	—
54° 126°	N.E.	TOPLEY, BABINE, TOTEM Tro-Buttle Exploration Ltd. G. A. Dirom. October 14, 1969.	2095	—	—	×	—
54° 127°	N.E.	F (KEM GROUP) Climax Molybdenum Corporation of British Columbia Ltd. D. A. Davidson. January 13, 1969.	1730	—	—	×	—
54° 127°	S.E.	FOG, SL, SHERRY Whitesail Mines Ltd. R. Woolverton. June 13, 1969.	1922	×	×	×	—
54° 127°	N.E.	LAVA Falconbridge Nickel Mines Ltd. D. H. Brown. March 27, 1969.	1875	—	—	×	—
54° 127°	N.E.	LAVA Falconbridge Nickel Mines Ltd. D. H. Brown. March 27, 1969.	1880	—	×	—	—
54° 127°	N.E., S.E.	LAVA, OLD TOM, CRATER, WEBSTER, MARMOT Falconbridge Nickel Mines Ltd. D. H. Brown. March 25, 1969.	1810	×	—	—	—
54° 127°	N.W.	LOU Mastodon-Highland Bell Mines Ltd. D. A. Heino. August 7, 1969.	1999	—	—	—	×
54° 127°	N.E.	GRIT Silver Standard Mines Ltd. W. St. C. Dunn. July 7, 1969.	1931	—	—	×	—
54° 128°	N.E.	CROESUS Kleanza Mines Ltd. .... August 11, 1969.	1942	—	—	—	×
54° 128°	N.E.	GOLD STAR New Gold Star Mines Ltd. G. P. E. White. June 26, 1969.	1961	×	—	—	—
54° 128°	N.W.	MACEX Rio Tinto Canadian Exploration Ltd. J. G. Baird and R. O. Crosby. September 18, 1969.	2029	—	×	—	—
54° 128°	N.E.	REGA Magnetron Mining Ltd. A. J. Sinclair and C. A. Ager. September 8, 1969.	2016	—	×	—	—
54° 128°	S.E.	T, DA, DOR Ardo Mines Ltd. J. B. Prendergast. May 6, 1969.	1863	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
54° 128°	S.E.	TRAPLINE Pio Vogrig. J. B. Prendergast. January 31, 1969.	1747	—	—	×	—
55° 124°	S.W.	FAR W. R. Bacon (for N.B.C. Syndicate). W. R. Bacon. September 26, 1969.	1994	—	×	—	×
55° 124°	S.W.	TAN, JUDY, ALEX, BARB, GREG D. L. Moore and R. M. Reininger. H. Veerman. October 2, 1969.	2007	—	×	×	—
55° 125°	S.E.	BAL Tchentlo Lake Mines Ltd. A. J. Sinclair. September 9, 1969.	2010	—	—	—	×
55° 125°	S.E.	HEATH Amax Exploration, Inc. J. F. Allan and H. T. Dummett. August 5, 1969.	1965	×	—	×	—
55° 125°	S.E.	HI W. R. Bacon (for N.B.C. Syndicate). W. R. Bacon. August 19, 1969.	1947	×	×	×	—
55° 125°	N.W.	HOUSTON Rip Van Mining Ltd. S. J. Hunter. January 24, 1969.	1755	—	—	×	—
55° 126°	S.E.	ALPHA Noranda Exploration Co., Ltd. G. E. Dirom. September 26, 1969.	2038	—	×	×	—
55° 126°	S.W.	BABE Noranda Exploration Co., Ltd. G. E. Dirom. August 26, 1969.	2150	—	×	—	—
55° 126°	S.E.	BETH Noranda Exploration Co., Ltd. G. E. Dirom and J. D. Knauer. September 8, 1969.	1975	—	×	×	—
55° 126°	N.W.	BRIAN, ADD MacDonald Consultants Ltd. J. Klein and R. Crosby. March 25, 1969.	1841	—	×	—	—
55° 126°	S.E.	KOFIT, WOLF Canadian Superior Exploration Ltd. B. H. Kahlert and A. P. Fawley. June 13, 1969.	1854	×	×	×	—
55° 126°	S.E.	KOFIT Canadian Superior Exploration Ltd. W. Rainboth. October 14, 1969.	2047	—	×	×	—
55° 126°	S.E.	WOLF Canadian Superior Exploration Ltd. J. G. Baird. March 12, 1969.	1808	—	×	—	—
55° 127°	N.E.	ICE Sicintine Mines Ltd. R. G. Jury. September 23, 1969.	2070	—	—	×	—
55° 127°	N.E.	SHEL Cominco Ltd. J. Richardson and D. L. Cooke. July 18, 1969.	2084	×	—	×	—

Reports Credited for Assessment, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
55° 129°	S.E.	KAY Phelps Dodge Corporation of Canada Ltd. R. N. Singh and J. M. Brander. August 8, 1969.	1980	—	—	×	—
56° 126°	S.E.	JESS, HOLLY Bayland Mines Ltd. R. Wolfe. August 5, 1969.	1954	×	—	×	—
56° 126°	N.E.	RED Cominco Ltd. D. L. Cooke and J. Richardson. June 27, 1969.	1941	×	—	×	—
56° 127°	S.E.	JKB Canadian Superior Exploration Ltd. B. H. Kahlert and W. Rainboth. April 29, 1969.	1874	—	—	×	—
56° 130°	S.W., N.W.	JOE, HAR, MAX Granduc Mines, Ltd. J. Klein and R. O. Crosby. May 14, 1969.	1835	—	×	—	—
57° 126°	S.W.	ATTYCELLEY Kennco Explorations, (Western) Ltd. R. W. Stevenson. July 28, 1969.	1956	—	—	×	—
57° 126°	S.W.	GARNET Quebec Cartier Mining Co. A. F. Reeve. April 1, 1969.	1805	×	—	—	—
57° 126°	S.W.	PIL Cominco Ltd. D. L. Cooke and J. Richardson. June 27, 1969.	1888	×	—	—	—
57° 126°	S.W.	PILLAR Quebec Cartier Mining Co. A. F. Reeve. April 1, 1969.	1825	×	×	×	—
57° 126°	S.W.	PILLAR Kennco Explorations, (Western) Ltd. R. W. Stevenson. May 16, 1969.	1861	—	—	×	—
57° 126°	S.W.	PILLAR Kennco Explorations, (Western) Ltd. R. W. Stevenson. June 17, 1969.	1906	—	—	×	—
57° 126°	S.W.	PINE Kennco Explorations, (Western) Ltd. R. W. Stevenson. May 9, 1969.	1846	×	—	×	—
57° 126°	S.W.	PINE Kennco Explorations, (Western) Ltd. R. W. Stevenson. June 17, 1969.	1886	—	—	×	—
57° 126°	S.W.	PINE Kennco Explorations, (Western) Ltd. R. W. Stevenson. July 10, 1969.	1983	—	—	×	—
57° 126°	S.W.	PINE Kennco Explorations, (Western) Ltd. R. W. Stevenson. August 5, 1969.	2035	—	—	×	—
57° 126°	S.W.	RAT Cominco Ltd. D. L. Cooke and J. Richardson. June 12, 1969.	1908	×	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
57° 126°	S.W.	RIGA Quebec Cartier Mining Co. A. F. Reeve. April 1, 1969.	1802	×	—	—	—
57° 126° 57° 127°	S.W. S.E.	SPARTAN Quebec Cartier Mining Co. A. F. Reeve. April 1, 1969.	1823	×	—	×	—
57° 126°	S.W.	THEBAN Cominco Ltd. D. L. Cooke and J. Richardson. July 18, 1969.	2082	×	—	×	—
57° 126°	S.W.	XENOS Kennco Explorations, (Western) Ltd. R. W. Stevenson. July 28, 1969.	1984	—	—	×	—
57° 126°	S.W.	XMAS Cominco Ltd. D. L. Cooke and J. Richardson. June 27, 1969.	1940	×	—	×	—
57° 127°	S.E.	CHAPPELLE Kennco Explorations, (Western) Ltd. R. W. Stevenson. July 10, 1969.	1959	—	—	×	—
57° 127°	N.E.	HARMON Kennco Explorations, (Western) Ltd. R. W. Stevenson. June 9, 1969.	1872	—	—	×	—
57° 127°	N.E.	HARMON Kennco Explorations, (Western) Ltd. D. K. Fountain and R. A. Bell. July 28, 1969.	1981	—	×	—	—
57° 127°	S.E.	SOM Cominco Ltd. D. L. Cooke and J. Richardson. July 18, 1969.	2083	×	—	×	—
57° 131°	N.W.	ANG Coronet Mines Ltd. R. O. Crosby. March 7, 1969.	1786	—	×	—	—
57° 131°	S.W.	RM Honda Mining Co. Ltd. H. H. Cohen. September 22, 1969.	2057	—	×	—	—
57° 132°	N.E.	LLC Spartan Explorations Ltd. W. J. Roberts, C. L. Smith, and R. H. Seraphim. May 8, 1969.	1893	×	—	—	—
58° 125°	N.E.	JOHN Churchill Copper Corporation Ltd. E. S. Holt, J. Billingsley, and S. H. Ward. June 9, 1969.	1892	×	×	—	—
58° 128° 58° 129°	S.W. S.E.	HC, CM Pelly Copper Corporation Ltd. G. C. Campbell and R. B. Allen. September 8, 1969.	1963A	×	—	—	—
58° 128° 58° 129°	S.W. S.E.	HC, CM Pelly Copper Corporation Ltd. G. C. Campbell and R. B. Allen. September 8, 1969.	1963B	—	—	—	×
58° 128°	S.W.	KAC Silver-X International Mines Ltd. R. S. Adamson and P. J. Street. October 22, 1969.	2040	—	—	×	—

REPORTS CREDITED FOR ASSESSMENT, 1969—*Continued*

Geographic Position		Property Owner or Principal Author of Report Date of Submission	Report No.	Kind of Work			
1° Quadr.	Quarter			Geological	Geophysical	Geochemical	Line-cutting, Grid Survey, or Topographic Survey
58° 128°	S.W.	TURN, PYRRHOTITE, COBALT Falconbridge Nickel Mines Ltd. R. O. Crosby and J. Steele. July 15, 1969.	2056	—	×	—	—
58° 129°	S.W.	FORD Spartan Explorations Ltd. W. J. Roberts and C. L. Smith. April 29, 1969.	1891	—	×	—	—
58° 129°	S.W.	MAY Newconex Canadian Exploration Ltd. P. W. Richardson. April 17, 1969.	1820	—	—	×	—
58° 131°	S.W.	GO Skyline Explorations Ltd. P. H. Sevensma and G. Gutrath. October 15, 1969.	2061	×	—	×	—
58° 132°	S.W.	LC 1, PETER Geophoto Services Ltd. E. J. Hooke and E. M. Estabrooks. July 15, 1969.	2059	×	—	—	—
58° 132°	S.W.	LC 2 Geophoto Services Ltd. E. J. Hooke and G. O. Raham. July 15, 1969.	2060	×	×	×	—
58° 132°	N.E.	MAGNET, NOMAD Centex Mines Ltd. R. G. Jury. July 26, 1969.	1925	—	×	—	—
59° 128°	S.E.	DEBBIE Emperor Mines Ltd. D. R. Cochrane and J. Cerne. August 11, 1969.	1948	—	×	—	—
59° 129°	S.E.	ATAN, ADAIR, AUGUST, SKI Tournigan Mining Explorations Ltd. D. R. Cochrane. April 8, 1969.	1813	—	×	×	—
59° 129°	S.E.	KIRK Cry Lake Minerals Ltd. J. G. Baird and R. O. Crosby. April 10, 1969.	1831	—	×	—	—
59° 129°	S.W.	RAY, MOS, FALL Chapparal Mines Ltd. R. O. Crosby. July 31, 1969.	1962	—	×	—	—
59° 129°	S.W.	SILVER QUEEN, GOLDEN, NORTHERN QUEEN Coast Silver Mines Ltd. R. O. Crosby. July 25, 1969.	1990	—	×	—	—
59° 133°	N.E.	FALUKA, JOMO Canadian Johns-Manville Co. Ltd. C. Aspinall. September 12, 1969.	2039	×	—	—	×
59° 133°	N.E.	FOX Arctic Gold and Silver Mines Ltd. J. E. Wallis and D. Beggs. August 18, 1969.	2132	×	—	×	—
59° 133°	N.E.	HOBO, THOR Canadian Johns-Manville Co. Ltd. F. D. Forgeron. September 16, 1968.	1763	—	—	×	—
59° 133°	N.E.	HOBO, THOR Canadian Johns-Manville Co. Ltd. C. Aspinall. September 16, 1968.	1764	×	—	—	—
59° 133°	N.E.	THOR Canadian Johns-Manville Co. Ltd. D. K. Fountain. February 26, 1969.	1991	—	×	—	—

Placer

CONTENTS

PAGE
ATLIN MINING DIVISION 375
LIARD MINING DIVISION 375
OMINECA MINING DIVISION 375
CARIBOO MINING DIVISION 375
  Hixon Placers Inc. 375
  Hannandor Placer 376
  Nelson Creek Placer 376
CLINTON MINING DIVISION 376
  Fairless Creek Placer 376
CLINTON AND LILLOOET MINING DIVISIONS 376
SIMILKAMEEN MINING DIVISION 376
GOLDEN MINING DIVISION 377
  Bugaboo and Forster Creek Uranium 377
  Malloy and Vowell Creek Uranium 377
FORT STEELE MINING DIVISION 377
  Maus Creek Placer 377

ATLIN MINING DIVISION

Placer-mining in the Atlin area continues to decline. Assessment work was done on leases on Birch Creek by D. McLean and C. Guyett; on Boulder Creek; on McKee Creek by Luigi Piccolo and his partner; on Pine Creek by Messrs. Graham, Sieger, Husselbee, Klessner, and Mattson; and on Spruce Creek at the Noland mine by A. V. Mattson, at Spruce Creek placers, and on leases held by La Roche and Del Cozzo.

LIARD MINING DIVISION

Brycon Explorations Ltd. holds a very large number of placer leases at the junction of the Hyland River with the Liard River. The company established a camp on the property and began testing. A Becker drill was used to drill 26 9-inch diameter holes totalling 1,500 feet.

OMINECA MINING DIVISION

Inlet Exploration Limited held five placer leases on the Bulkley River 9 miles east of New Hazelton and extending upstream from the mouth of Mudflat Creek. Four 4-inch holes were drilled to bedrock, the gold content of the gravel was found to be very low and the leases were allowed to lapse.

CARIBOO MINING DIVISION

HIXON PLACERS INC.

LOCATION: Lat. 53° 27′ Long. 122° 33′ (93G/7E)
On Hixon Creek, 3 miles east of Hixon.
CLAIMS: Fourteen placer-mining leases.

ACCESS: By road from Hixon.

OWNER: HIXON PLACERS INC., 318 Burrard Building, 1030 West Georgia Street, Vancouver 5.

WORK DONE: Five men worked six months opening up a new hydraulic pit under the supervision of C. A. Brown.

HANNANDOR PLACER

LOCATION: Lat. 53° 01′ Long. 122° 02′ (93G/1E)
On Lightning Creek, downstream from the junction of Angus Creek.

ACCESS: Twenty-three miles east of Quesnel.

OWNER: Hannandor Gold Ltd.

OPERATOR: HARCOL PLACER PRODUCTION LIMITED, 305, 1033 West Pender Street, Vancouver 1.

WORK DONE: An area 600 feet by 100 feet was cleared, some trenches dug to a depth of 17 feet by back-hoe, and two holes totalling 230 feet were drilled.

NELSON CREEK PLACER

LOCATION: Lat. 53° 06′ Long. 121° 44′ (93H/4E)
On Nelson Creek.

OPERATOR: NELSON CREEK MINING CO. LTD., 8801—100 Street, Grande Prairie, Alta.

WORK DONE: Three miles of ditch was reconditioned and a hydraulic pit of about one-half acre and about 30 feet deep was taken out.

CLINTON MINING DIVISION

FAIRLESS CREEK PLACER

LOCATION: Lat. 51° 22′ Long. 122° 34′ (92O/7E)
On Fairless and Borin Creeks on the west side of Black Dome Mountain.

CLAIMS: Twelve placer leases on Fairless and Borin Creeks.

ACCESS: By road from Clinton, 108 miles.

OWNER: FAIRBORN MINES LTD., 903, 470 Granville Street, Vancouver 2.

WORK DONE: Some bulldozer trenching was done.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 291.

CLINTON AND LILLOOET MINING DIVISIONS

Payco Mines Ltd. held four groups of placer leases on the Fraser River at Castle Rock, Hills Bar, Big Slide, and Crows Bar. A suction dredge was used to excavate gravel at depths of about 15 feet.

SIMILKAMEEN MINING DIVISION

New Method Placers Ltd., P.O. Box 537, Princeton, hold three placer leases on the Similkameen River just south of Princeton. Four hundred tons of gravel dug by back-hoe from Lease No. 1555 was processed by gravity separation and classifier. The work was supervised by H. C. Woodman.

Bethlehem Copper Corporation Ltd., P.O. Box 520, Ashcroft, hold 18 placer leases on the Similkameen River, downstream from the mouth of Whipsaw Creek. The leases cover river and bench placers. A legal survey of the leases was made.

GOLDEN MINING DIVISION

BUGABOO and FORSTER CREEK URANIUM

LOCATION: Lat. 50° 39′ Long. 116° 21′–26′ (82K/9W)
50° 47′–52′ 116° 35′–41′ (82K/15E)
Upper Forster Creek and Bugaboo Creek, 20 miles west of Radium.

CLAIMS: Placer-mining Leases 303 to 314, 351, 354 to 357.

OPERATOR: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, P.O. Box 1500, Asbestos, P.Q.

METAL: Uranium.

WORK DONE: Geochemical testing of sands and a scintillometer survey of about 4 miles of upper Forster Creek and geochemical testing of sands, scintillometer and magnetometer surveys of about 7 miles of upper Bugaboo Creek.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1955, p. 86; 1956, p. 142; Assessment Reports Nos. 2006 and 2090.

MALLOY and VOWELL CREEK URANIUM

LOCATION: Lat. 50° 50′ Long. 116° 47′–53′ (82K/15W)
Twenty-five miles west of Brisco.

CLAIMS: Placer-mining Leases 319 to 340.

ACCESS: By logging-road up Bobbie Burns and Vowell Creeks, 40 miles from Parson.

OPERATOR: DILLINGHAM CORPORATION OF CANADA LTD., 1500 West Georgia Street, Vancouver 5.

METALS: Uranium and rare earths.

WORK DONE:

Flat ground adjacent to Malloy and Vowell Creeks above the mouth of Malloy Creek was tested extensively by churn drilling. Holes were drilled on lines 1,000 feet apart, approximately at right angles to the valley, to depths up to 100 feet deep. Samples of sand above bedrock or a clay layer were taken at 4-foot intervals and concentrated in a series of screens and riffles before being shipped for analysis. Seventy-seven holes totalling 4,200 feet were drilled.

The testing on Vowell Creek covered part of the ground tested in 1954 and 1955 by St. Eugene Mining Corporation Limited. The work was under the direction of J. M. Black.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1956, p. 142.

FORT STEELE MINING DIVISION

Four placer leases, Nos. 1052 to 1055, located on the Moyie River upstream from Negro Creek were tested by G. L. Webber and D. L. Pighin. About 25 cubic yards of hand trenching was done and four test-holes drilled to depths of up to 35 feet. The holes were sampled at 5- or 10-foot intervals; the gold content of the gravel was found to be very low.

MAUS CREEK PLACER

LOCATION: Lat. 49° 38′ Long. 115° 33′ (82G/12E)
On Maus Creek near Fort Steele.

CLAIMS: Placer-mining Leases 732, 733, 945 to 947.

Access: Six miles by road from Fort Steele.

Owner: MAUS MINERALS LTD., 409 Dieppe Boulevard, Lethbridge, Alta.

Work Done: The drift from the bottom of the shaft was driven on and in bedrock for an additional 13 feet.

Structural Materials and Industrial Minerals

CONTENTS

PAGE

ASBESTOS 379
BARITE 382
BUILDING-STONE 383
CEMENT 386
CLAY AND SHALE 387
DIATOMITE 389
GYPSUM 389
JADE (Nephrite) 389
LIMESTONE 389
MARL 398
PHOSPHATE 398
SAND AND GRAVEL 399
SILICA 405

DRAWINGS

FIG.

42. Moon Creek asbestos deposit 382
43. Laredo limestone quarry 390
44. Dahl Lake limestone quarry 393
45. Ivan (Mount Rose silica) quarry 406

ASBESTOS

CASSIAR MINE (No. 111, Fig. 8)

MINING DIVISION: Liard.

LOCATION: Lat. 59° 19.6′ Long. 129° 49.4′ (104P/5W)
Between 5,870 and 7,000 feet elevation on Mount McDame, 3 miles north of Cassiar.

CLAIMS: Forty-two Crown-granted and five leased.

ACCESS: By gravel road, 86 miles from Mile 648.8 on the Alaska highway.

OWNER: CASSIAR ASBESTOS CORPORATION LIMITED, 1001, 85 Richmond Street, West, Toronto, Ont.; mine office, Cassiar.

WORK DONE: Two 200-horsepower Saskatoon boilers installed in powerhouse, with extension of steam and condensate lines to serve plant and townsite; two new Pan-Abode dwellings were built, with maintenance and repair to existing structures; foundation for new milling facility poured; repairs to tram-line towers completed. Total power generated, 20,270,010 kilowatt-hours and 43,689,025 pounds of steam used in townsite heating. Production: 79,590 tons fibre from 612,814 tons ore milled.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1953 to 1968.

MOON CREEK ASBESTOS

By J. W. McCammon

Mining Division: Lillooet.

Location: Lat. 50° 45′ Long. 122° 01.2′ (92J/16E)
At 5,300 feet elevation, just south of the British Columbia Hydro power-line right-of-way where it crosses the ridge summit on the southeast side of Moon Creek. This is 3 miles southwest of Bridge River at the mouth of Moon Creek and 6 miles northwest of Lillooet.

Claims: The property covers 80 claims, but the showings examined are all on the DEE 1 and DEE 2.

Access: By 9.8 miles of steep road that forks west off the Bridge River road at the south end of the bridge over Bridge River, 3.8 miles north of Lillooet.

Owner: CANADIAN JOHNS-MANVILLE COMPANY LIMITED. John Kerr, 1048 Kemano Street, Kamloops, in charge of work.

Work Done: Diamond drilling, magnetometer and geological surveys.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 296; *B.C. Dept. of Mines*, Bull. 44, Geology of The Fraser River Valley, by H. P. Trettin, 1961, pp. 81–84; *B.C. Dept. of Mines*, Bull. 32, Geology and Mineral Deposits of the Shulaps Range, by G. B. Leech, 1953; Assessment Report No. 1862.

Description:

On this property, cross-fibre chrysotile asbestos is found in multi-directional fractures in serpentinized peridotite. The peridotite forms an irregular elongate layer between sedimentary rocks. The layer averages nearly one-half mile wide and is more than 2½ miles long. It trends northwest and apparently dips southwest. Similar peridotite in a similar geological setting has been described by Trettin in the area to the southeast between the claims and Lillooet and also by Leech in the Shulaps Mountains, 30 miles to the northwest. In both of these other occurrences the peridotite is thought to be of Upper Triassic age. Since the rock under consideration appears to be part of the same belt as the other two, it is therefore assumed to be of Upper Triassic age also.

The ground in the area of the main showings is lightly timbered. Overburden exposed in the trenches varies from 1 to 10 feet deep. The terrain slopes to the east and west from the ponds shown on the accompanying map. The most easterly trench is about 400 feet lower in elevation than the ponds.

The peridotite is a dark green to black rock that weathers to brownish grey and often has a bluish bloom on slick surfaces. It consists of variable amounts of serpentine, remnants of olivine and enstatite crystals, and scattered chromite and magnetite grains. It could be classified as partly serpentinized harzburgite. The enstatite crystals and their pseudomorphs, where serpentinized, present flat shiny faces on freshly broken rock surfaces and stand out as warty protruberances on weathered surfaces. They are commonly one-quarter inch and may range up to one-half inch in diameter.

On the whole, in the area of interest, the peridotite is highly shattered: in some places fracturing has formed angular blocks; in other places there has been shearing, which produced " fish-scale " lensy fragments with slick surfaces; and in still other places the rock has been pulverized to form a greenish-grey gouge. Outside the area where the fibre is concentrated, the rock is less sheared and shattered.

The rocks overlying the peridotite immediately to the southwest are interbedded greywacke, small-pebble conglomerate, and argillite. Most of the outcrops seen consisted of greywacke. Thin-sections showed it consisted of poorly sorted, angular to rounded clasts of quartz, plagioclase, porphyritic rock, and chert. Some altered intermediate igneous rock, probably andesite flow or diorite dyke, is poorly exposed in the most southerly trench.

Similar rocks, with short lenses of limestone in addition, underlie the peridotite to the northeast.

Attitudes in the sedimentary rocks are not well displayed. Those that were measured show the rocks strike northwest and dip 62 to 65 degrees southwest. One flatter dip, in the outcrop between the ponds, may be a result of fault drag.

The only exposure of the upper contact of the peridotite seen was in the outcrop between the two ponds. The contact at this exposure is about parallel to the attitude of the adjacent sedimentary rocks. However, at the contact, the sediments are contorted and fractured and the serpentine is mashed and veined with white calcite. Shearing is evident in other outcrops along the contact zone. No exposure of the bottom contact of the peridotite was seen.

A few small, highly albitized diorite dykes intrude the peridotite and a small plug of similar rock protrudes through peridotite about one-half mile down the road from the showings. In a few places, lenses, up to 3 feet in diameter of hard white rock consisting largely of white grossularite garnet, are enclosed in peridotite.

The asbestos, cross-fibre chrysotile, occurs in thin, irregular, discontinuous veinlets. The attitudes of the veinlets are variable but there is a vague suggestion of one vertical set that strikes about west and another set that strikes southwesterly with a flat dip north or south. Vein thickness is normally one-quarter inch or less. The widest vein seen was five-sixteenths inch, but it had a central parting. The fibre is dark green in the mass but readily fluffs up into light grey when fiberized. The texture of separated fibres rolled into a ball between the fingers is relatively soft. Good fresh exposures capable of yielding reliable fibre counts were hard to find. Only four counts were made at the numbered locations on the accompanying map. The fibre counts were as follows:—

Location	Width Measured	No. of Veins	Width of Veins	Grade
	Feet		Inches	Per Cent
1	5	4 5 1	⅛ 1/16 1/32	1.4
2	5	1 5 4 2	3/32 ⅛ 1/16 1/32	1.7
3	5	3 3 3 2	¼ 3/16 ⅛ 1/16	3.0
4	4	1 6 2 8 1	⅜ ¼ 3/16 ⅛ 1/16	5.5

In the thinner veins, the fibre generally extends across the full vein width, but in the ¼-inch and some ⅛-inch-wide veins there may be one or more longitudinal partings that cause the fibre length to be shorter than vein width.

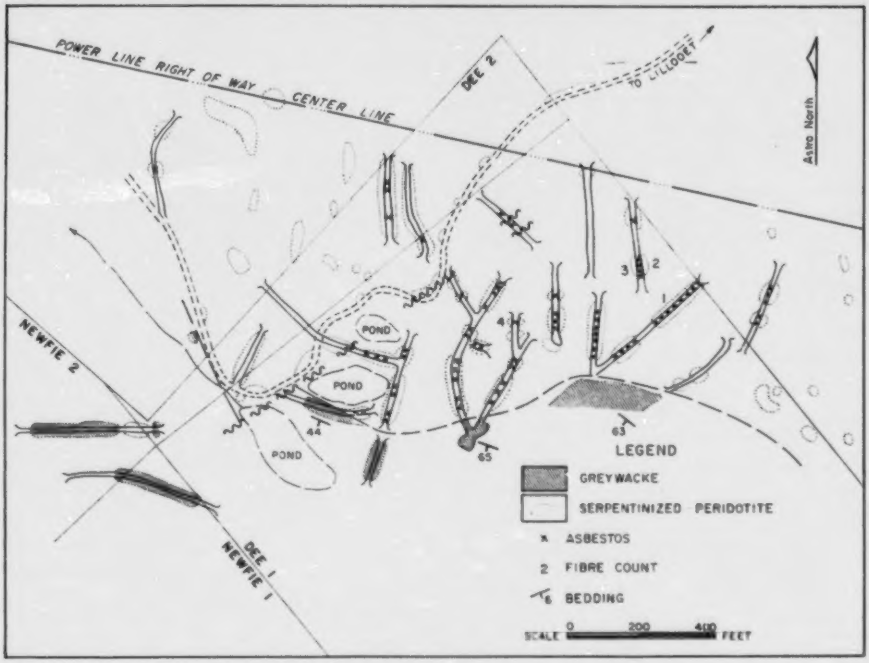

POWER LINE RIGHT OF WAY CENTER LINE
DEE 2
TO LILLOOET
Astro North
NEWFIE 2
POND
POND
POND
44
65
63
4
3
2
1
DEE 1
NEWFIE 1
LEGEND
GREYWACKE
SERPENTINIZED PERIDOTITE
ASBESTOS
2 FIBRE COUNT
6 BEDDING
SCALE 0 200 400 FEET

Figure 42. Moon Creek asbestos showing.

In the area examined, the fibre appears to be concentrated in a zone about 1,200 feet long and 400 feet wide that extends along the south contact of the peridotite mass. Outside this zone, fibre was seen in only a few small scattered veinlets and patches. Only five single veinlets of fibre were found in a group of trenches northwest of the DEE 2 claim.

In June, 1969, the workings on the property consisted of the trenches as shown on Figure 42, which is a slight modification of a plan kindly provided by the company. A group of five other trenches, 2,400 feet long in total length, is located 1,200 feet northeast of the northeast boundary of the DEE 2 claim. Diamond drilling was in progress at the time of examination.

BARITE

PARSON BARITE

Mining Division: Golden.

Location: Lat. 51° 01.5′ Long. 116° 39′ (82N/2E)
At 3,700 feet elevation, 3½ miles due south of Parson.

Claims: HILLTOP (Lot 14351), SNOWDROP (Lot 14352), and HONEST JOHN (Lot 15734).

Access: By Cranbrook Sawmills logging-road, 5 miles south from Parson.

Owner: MOUNTAIN MINERALS LIMITED, P.O. Box 700, 529 Sixth Street South, Lethbridge, Alta.

Work Done: Barite shipped from stockpile, 137 tons.

BAROID OF CANADA

Mining Division: Golden.
Location: Lat. 50° 56′ Long. 116° 29′ (82K/16W)
At 3,100 feet elevation, on west side of Jubilee Mountain, 5½ miles northwest of Spillimacheen.
Claims: Former Silver Giant mine property.
Access: By road, 8 miles from Spillimacheen.
Owner: BAROID OF CANADA, LTD., 44 King Street West, Toronto, Ont.
Work Done: Barite recovered from tailings pond, 14,907 tons.

BRISCO BARITE

Mining Division: Golden.
Location: Lat. 50° 49.8′ Long. 116° 19.5′ (82K/16W)
Between Templeton River and Dunbar Creek, 2½ miles west of Brisco.
Claims: WAMINECA (Lot 15044), CANYON (Lot 15045), SALMON (Lot 15046), CARMINE (Lot 15047), and NORTHISLE (Lot 15048).
Access: Gravel road, 4.3 miles west from Brisco.
Owner: MOUNTAIN MINERALS LIMITED, P.O. Box 700, 529 Sixth Street South, Lethbridge, Alta.
Work Done: Barite mined, crushed, and shipped, 12,305 tons.

TOBY CREEK BARITE

Mining Division: Golden.
Location: Lat. 50° 21′ Long. 116° 24.4′ (82K/8W)
Near southwest corner of Lot 16154 on Toby Creek at mouth of Jumbo Creek, 20 miles southwest of Invermere.
Access: By road up north side of Toby Creek from Wilmer.
Owner: MOUNTAIN MINERALS LIMITED, P.O. Box 700, 529 Sixth Street South, Lethbridge, Alta.
Work Done: Plant built to recover barite from tailings pond of old Mineral King mine.

YORNOC

Mining Division: Golden.
Location: Lat. 50° 19.5′ Long. 116° 14.8′ (82K/1W)
(*See* property 21, Fig. 41). *See* write-up under this name, page 344.

BUILDING-STONE

INTERNATIONAL MARBLE & STONE PLANT AND QUARRY

Location: Lat. 49° 15.5′ Long. 116° 38.5′ (82F/7E)
East side of Highway No. 3, about 1 mile north of Sirdar.
Owner: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street S.W., Calgary, Alta.
Work Done: Crushing, screening, and bagging plant operated at increased capacity. Chief production, dolomite and quartzite chips. Most sold east of Rockies.
Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 298.

CRAWFORD CREEK DOLOMITE QUARRY

LOCATION: Lat. 49° 41.5′ Long. 116° 48′ (82F/10W)
East side of road, one-half mile south of Crawford Creek, 1½ miles northeast of Crawford Bay Post Office.

OWNER: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street S.W., Calgary, Alta.

WORK DONE: Mining method changed from open-pit to underground to improve quality of dolomite.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 298.

CRAWFORD CREEK QUARTZITE QUARRIES

LOCATION: Lat. 49° 42.7′ Long. 116° 46.5′ (82F/10W)
Two quarries 1 mile apart, on north side of road up north side of Crawford Creek, 2½ miles northeast of Crawford Bay Post Office.

OWNER: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street S.W., Calgary, Alta.

WORK DONE: Increased production.

PORCUPINE CREEK

LOCATION: Lat. 49° 15.5′ Long. 117° 03.7′ (82F/6E)
On Porcupine Creek, about 6 miles east of Salmo River.

OPERATOR: DALE VIEWEGER, of Nelson.

WORK DONE: About 200 tons of quartzite facing-stone quarried.

SHEEP CREEK

LOCATION: Lat. 49° 08.5′ Long. 117° 08.5′ (82F/3E)
Valley slopes of Sheep and Waldie Creeks, near their junction.

WORK DONE: About 50 tons of quartzite facing-stone produced from talus slopes.

RAMSHEAD QUARRIES

LOCATION: Lat. 49° 01.9′ Long. 118° 22.8′ (82E/1W)
North side of Highway No. 3, 2 miles east of Grand Forks.

OWNER: RAMSHEAD QUARRIES LTD., 301, 402 West Pender Street, Vancouver 3.

WORK DONE: Crushing and screening plant constructed to treat dolomite and quartzite for shipment to Vancouver building-stone market.

OKANAGAN LANDING GRANITE QUARRY

By J. W. McCammon

LOCATION: Lat. 50° 12′ Long. 119° 24′ (82L/3W)
Near centre of east boundary of Section 10, Township 13, Range 11, west of the 6th meridian, at 1,850 feet elevation on ridge, 3 miles southwest of Okanagan Landing.

ACCESS: One and two-fifths miles of rough road that branches southeast off road down east side of Okanagan Lake at Sunset Road, 2 miles southwest of Okanagan Landing.

OPERATOR: COLUMBIA MARBLE CO., 5249 Regent Street, Burnaby.

WORK DONE: Small quarry opened up.

Description:

The stone at the quarry is a pink, medium- to coarse-grained granite with feldspar crystals up to 6 millimetres long. It consists of pink orthoclase-perthite with quartz and minor oligoclase, biotite, sphene, and magnetite. Two major sets of joints occur in the quarry area. One set strikes 10 degrees north of west and dips 85 degrees north to vertical. The joints are irregularly spaced at intervals of 1 foot or more, most commonly 4 to 10 feet or greater. The second set strikes 20 degrees east of north and dips steeply east. The spacings are irregular, generally 6 feet or more. A few scattered gneissic inclusions and small vugs are present.

The granite in which the quarry is located underlies a large area south and east of Okanagan Landing.

In June, 1969, the quarry face was 80 feet long and had a maximum total height of 25 feet in three benches.

Stone from the quarry was shipped to the company plant in Burnaby, where it was sawn into 1½-inch-thick slabs 6 feet long and 18 inches wide. The slabs were used as veneer to face the retaining-wall around the new Provincial Museum Complex in Victoria.

VALLEY GRANITE QUARRY

Location: Lat. 49° 15.5′ Long. 121° 40.5′ (92H/4E)
West side Highway No. 1, 10 miles west of Hope.

Owner: VALLEY GRANITE PRODUCTS LIMITED, 10070 Timberline Place, Chilliwack.

Work Done: Granite products, including poultry grits, stucco dash, sand-blast materials produced, 5,500 tons.

GILLEY QUARRY

Location: Lat. 49° 19.2′ Long. 122° 40.5′ (92G/2E)
On west bank of Pitt River, immediately south of mouth of Munro Creek.

Access: By road, 7½ miles from Coquitlam.

Owner: OCEAN CEMENT LIMITED, North Foot of Columbia Street, Vancouver 4; W. McAdam, quarry superintendent.

Work Done: Thirty-five men produced 1,030,203 tons of quartz diorite.

PITT RIVER QUARRY

Location: Lat. 49° 17.4′ Long. 122° 39.3′ (92G/2E)
East bank of Pitt River on northern side of Sheridan Hill, 4 miles north of Pitt Meadows.

Access: By road, 5 miles from Pitt Meadows.

Owner: PITT RIVER QUARRIES LTD., 16211—84th Avenue, Surrey; J. A. Connolly, quarry superintendent.

Work Done: Five men quarried 67,800 tons of quartz diorite.

CATHERINE (previously CAMBRIA COPPER)

Location: Lat. 50° 44′ Long. 125° 49′ (92K/12W)
On Matsiu Creek, on the north side of Knight Inlet.

Claims: CATHERINE, ROGERS, GORDON, and JOHN, 15 in all.

Access: By boat or float plane from Kelsey Bay.

Owner: KNIGHT INLET RESOURCES LIMITED, 670, One Bentall Centre, Vancouver 1.

Work Done: Some geological mapping of the underground workings by A. Allen.

References: *Minister of Mines, B.C.*, Ann. Repts., 1929, p. 386; 1930, p. 304.

Description: Work was done on this property from about 1919 to 1930. Interest at that time was directed at the occurrences of bornite, malachite, azurite, and other sulphides at a granite-limestone contact. The current interest in the property is a band of blue marble.

S.U.P. 5382 QUARRY

By J. W. McCammon

Location: Lat. 48° 35′ Long. 124° 08.7′ (92C/9E)
In road cut on the Port Renfrew to Shawnigan Lake road, 2 miles east of the bridge over the San Juan River.

Claims: Special Use Permit No. 5382.

Access: About 300 feet west of Mile-post 14 on the Port Renfrew–Shawnigan Lake road.

Owners: JAMES E. WILSON and RICHARD W. CLIMIE, Milnes Landing.

Work Done: Small quarry opened up.

Description:

Slab rock of the Carboniferous(?) Leech River Formation has been produced at the S.U.P. 5382 quarry for use as building and patio stone. The rock at the quarry is greenish-grey, schisted greywacke. It consists of 1/16- to 1/8-inch-thick bands composed of angular quartz and plagioclase grains separated by films of chlorite. The chlorite films form planes that are remarkably flat and parallel. These foliation planes, probably representing the original bedding, strike north 77 degrees west and dip 77 degrees north. Two strong sets of joints are present—one, spaced at 1- to 3-foot intervals, strikes north 40 degrees west and dips 19 degrees southwest; the other, spaced at 1- to 4-foot intervals, strikes north 5 degrees west and is vertical. A few 1/4-inch-thick quartz veins strike across the foliation.

The rock breaks readily along the foliation planes into pieces one-half to 2 inches or more thick. Due to the jointing, the maximum size of slabs is about 2 by 3 feet. Pieces thinner than 1 inch are very weak. On weathering, the slabs tend to spall parallel to the foliation.

About 300 feet east of the quarry is a fault, east of which the rock is darker, thinner, and more slatey, but it is highly crinkled and breaks down into small lensy fragments.

Rock similar to that at the quarry-site outcrops intermittently along the road westward to the San Juan River bridge. Toward the bridge, however, it breaks into much smaller slabs than at the quarry.

The quarry is small and evidently there has not been much production from it.

CEMENT

OCEAN CEMENT LIMITED (B.C. CEMENT DIVISION)

Location: Lat. 48° 35.1′ Long. 123° 31.2′ (92B/12E)
Bamberton.

Owner: OCEAN CEMENT LIMITED (B.C. Cement Division), North Foot of Columbia Street, Vancouver 4.

Work Done: Cement produced, 429,734 tons; cement shipped, 444,023 tons.

CANADA CEMENT LAFARGE LTD.

Location: Lat. 49° 09.6′ Long. 123° 00′ (92G/3E)
On the Fraser River, south shore of Lulu Island, at foot of No. 9 road.

Owner: CANADA CEMENT LAFARGE LTD.; head office, 1051 Main Street, Vancouver 4.

Work Done: Cement produced, 351,304 tons.

CANADA CEMENT LAFARGE LTD.

Location: Lat. 50° 39.7′ Long. 120° 03.3′ (92I/9E)
On north bank of South Thompson River, 11 miles east of Kamloops.

Access: By road on north bank of South Thompson River, 11½ miles east of Highway No. 5.

Owner: CANADA CEMENT LAFARGE LTD., P.O. Box 728, Kamloops.

Work Done: Construction 70 per cent completed on cement plant rated at 210,000 tons per year; new bridge across Thompson River begun.

CLAY AND SHALE

THUNDER HILL SHALE QUARRY

Location: Lat. 50° 09′ Long. 115° 49.9′ (82J/4W)
At bottom of Thunder Hill, 2 miles west of Canal Flats.

Claims: THUNDER HILL 1 and 2.

Access: Road, 2 miles from Canal Flats.

Owner: MOUNTAIN MINERALS LIMITED, P.O. Box 700, 529 Sixth Street South, Lethbridge, Alta.

Work Done: Tons of shale shipped to Lethbridge, 1,715.

HANEY BRICK AND TILE LIMITED

Location: Lat. 49° 12.6′ Long. 122° 35.9′ (92G/2E)
On north bank of Fraser River at east edge of Haney.

Owner: HANEY BRICK AND TILE LIMITED, Haney.

Work Done: Clay quarried adjacent to plant and manufactured into 10,837 tons of facebrick, common brick, drain and structural tile, flue lining, and flower-pots.

RICHMIX QUARRY

Location: Lat. 49° 03.5′ Long. 122° 11.7′ (92G/1E)
Adjoining Kilgard to the northeast.

Owner: RICHMIX CLAY PRODUCTS LIMITED, 2890 Kent Avenue, Vancouver 12.

Work Done: Fireclay sufficient to make 8,056 tons of firebrick quarried and trucked to the plant in Vancouver, where the brick was manufactured.

CANADIAN REFRACTORIES LIMITED

Location: Lat. 49° 03.2′ Long. 122° 17.3′ (92G/1W)
49° 03.5′ 122° 11.7′ (92G/1E)
Plant at Abbotsford; mine and quarries at Kilgard.

Owner: CANADIAN REFRACTORIES LIMITED (Western Division), 1685 Boundary Road, Vancouver 6.

WORK DONE: Clay produced by seven men from underground fireclay mine at Kilgard, 24,925 tons; clay produced by six men from Kilgard No. 9, Straiton, and Selby open pits, 63,595 tons.

BRITISH COLUMBIA LIGHTWEIGHT AGGREGATES LTD.

LOCATION: Lat. 48° 48.1′ Long. 123° 11′ (92B/14E)
On peninsula between Winter Cove and Lyall Harbour at north end of Saturna Island.

OWNER: BRITISH COLUMBIA LIGHTWEIGHT AGGREGATES LTD., 855 West Broadway, Vancouver 9; B. Begon, plant manager.

WORK DONE: Plant expansion was begun with installation of an 8-foot-diameter kiln in parallel with the existing 10-foot-diameter kiln and the construction of increased storage facilities for raw shale and finished aggregate. Twenty men mined 56,000 tons of shale and produced and shipped 52,000 tons of expanded shale aggregate.

HILLBANK SHALE QUARRY

By J. W. McCammon

LOCATION: Lat. 48° 43′ Long. 123° 39.3′ (92B/12E)
On east bank of Koksilah River in southwest corner of Lot 20, Range 11, Shawnigan Land District, 1 mile southeast of Cowichan Station on the Esquimalt and Nanaimo Railway.

ACCESS: Road from Cowichan Station.

OWNER: OCEAN CEMENT LIMITED, Bamberton.

WORK DONE: Shale produced for use in Bamberton cement plant, 61,584 tons.

REFERENCES: Mines Branch, *Department of Mines and Technical Surveys, Ottawa,* Memorandum Series No. 128, October, 1954, Preliminary Report on Coated Lightweight Aggregate from Canadian Clays and Shales, Part VI, British Columbia.

DESCRIPTION:

Upper Cretaceous Haslam shale is exposed in the quarry and along the river bank for several hundred yards. The shale is dark grey to black crumbly rock in ¼- to ½-inch-thick beds. The beds strike north 70 degrees west and dip steeply north. Fossils are abundant in some horizons.

In June, 1969, the quarry was 400 feet long parallel to the river, 130 feet wide, and had a 25-foot-high face. The shale is trucked to the plant at Bamberton for use in the manufacture of cement.

This same shale was used in 1947 for dry-press brick manufacture by Cowichan Metallic Brick Co. The plant was a short distance southeast of the present quarry. Material from the old brickyard quarry gave favourable results in bloating tests for making light-weight aggregate.

DUNSMUIR SHALE PIT

By J. W. Robinson

LOCATION: Lat. 49° 12′ Long. 124° 05′ (92F/1E)
On Weigles road, 1½ miles southwest of Brannan Lake.

ACCESS: By road.

OWNER: CANADA CEMENT LAFARGE LTD., 1051 Main Street, Vancouver 4.

WORK DONE: Shale was quarried for shipment to the company cement plant on Lulu Island for use in cement manufacture. Shale mined and shipped, 56,430 tons.

GYPSUM

WESTERN GYPSUM LIMITED

By R. W. Lewis

Mining Division: Golden.
Location: Lat. 50° 30′ Long. 115° 53.8′ (82J/5W)
Between 4,000 and 5,000 feet elevation on north side of Windermere Creek, 8 miles east of Windermere.
Access: By private paved road, 11 miles from Wilmer.
Owner: WESTERN GYPSUM LIMITED, 2650 Lakeshore Highway, Clarkson, Ont.; quarry address, P.O. Box 217, Invermere.
Work Done: Gypsum shipped to Calgary and Vancouver, 280,894 tons.

DIATOMITE

FAIREY & COMPANY LIMITED

Location: Lat. 53° 03.4′ Long. 122° 31.5′ (93G/2E)
On Lot 6182, east bank of Fraser River, 5 miles north of Quesnel.
Access: By old Cariboo highway north from Quesnel.
Owner: FAIREY & COMPANY LIMITED, 661 Taylor Street, Vancouver 3.
Work Done: Small amount of diatomite produced for use in the company plant in Vancouver.

CROWNITE INDUSTRIAL MINERALS LTD. DIATOMITE QUARRY

Location: Lat. 52° 57.6′ Long. 122° 32.2′ (93B/15E)
On Lot 906, 1¼ miles southwest of West Quesnel.
Access: By road, 1½ miles from West Quesnel.
Owner: CROWNITE INDUSTRIAL MINERALS LTD., 706 Seventh Avenue S.W., Calgary, Alta.
Work Done: Stripping and trenching. New treatment plant built at south end of the old bridge over Quesnel River at its junction with the Fraser River.

JADE (NEPHRITE)

In 1969 nephrite (jade) was produced from the Fraser and Bridge Rivers and from Marshall and Noel Creeks in the Lillooet area; from O'Ne-el and Ogden Creeks in the Omineca area, and Seywerd and Wheaton Creeks in the Dease Lake area. Of interest was the shipment of a 20-ton jade boulder from Ogden Creek for exhibition in the British Columbia pavilion at the Osaka Exposition.

The nephrite from Marshall and Seywerd Creeks was from bedrock occurrences, the rest being alluvial boulders in streams not too far distant from their presumed bedrock source.

LIMESTONE

LAREDO LIMESTONE QUARRY

By J. W. McCammon

Location: Lat. 52° 42.8′ Long. 129° 03′ (103A/11E)
Near centre of northeast shore of Aristazabal Island, directly southwest of Ramsbotham Islands.
Claims: Land Lot 299.
Access: By boat or seaplane, 350 miles north from Vancouver or 120 miles south from Prince Rupert.

Owner: LAREDO LIMESTONE LTD., 515, 475 Howe Street, Vancouver 1.

Work Done: Road built 2 miles along coast from camp to quarry-site, quarry-site prepared.

References: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 311; *Geol. Surv., Canada*, Map 9-1966, Bella Coola-Laredo Sound.

Description:

The quarry is in a limestone mass intruded and surrounded by plutonic rocks. Limestone is exposed along the shore, in road cuts, and at scattered points inland.

The coast of the island consists of low, rocky bluffs. Inland the ground rises gradually and at a point half a mile southwest of the quarry the elevation, measured by barometer, is only 250 feet above sea-level. The ground surface is very rough and somewhat resembles miniature karst topography. Near the quarry are a series of northwest-trending ridges 20 to 40 feet wide separated by steep-walled valleys 10 to 20 feet wide and deep. Farther inland, irregular pits 5 to 10 feet in diameter and depth and short gullies break up the surface, leaving steep-sided ridges and pinnacles of limestone. A thin layer of black peaty soil overlies the bedrock and supports a good growth of trees, some as much as 5 feet in diameter at the base. Clearing and cleaning off the limestone surface is a slow process.

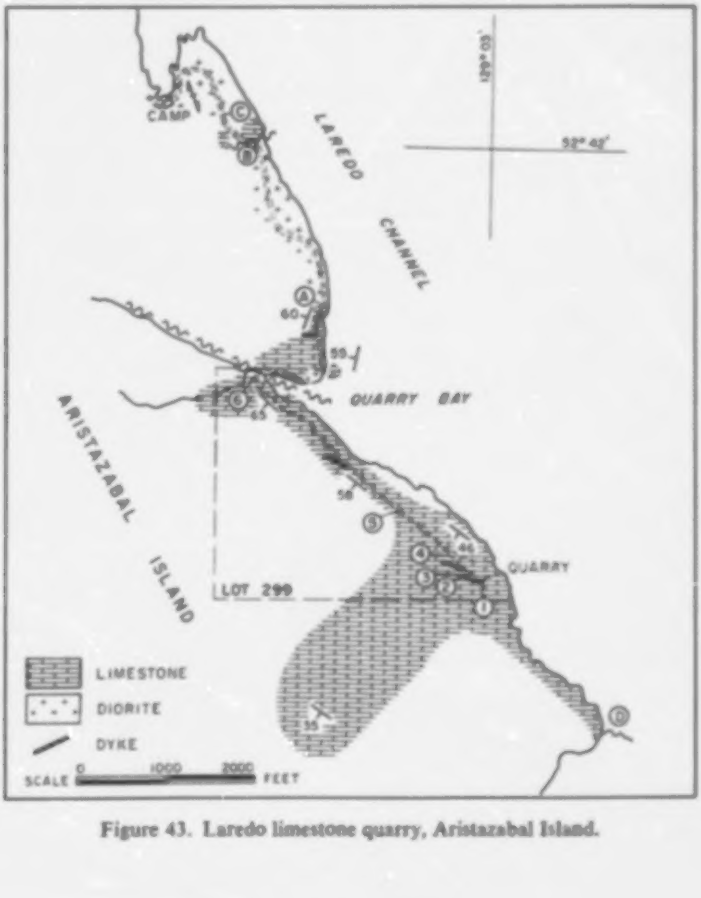


Figure 43. Laredo limestone quarry, Aristazabal Island.

The best limestone exposures are along the coast between Quarry Bay and the new quarry-site, or roughly between the north and south boundaries of Lot 299. Three northwest-trending steep dykes averaging about 3 feet thick and of granodiorite composition were noted along the roadside in this area. Limestone is present for 1,500 feet north along the road and shore from the head of Quarry Bay to point A (*see* Fig. 43). A small plug and dyke of hornblende diorite are exposed in this section. From A to a small creek at B, most of the rock is igneous. Much is medium- to fine-grained hornblende diorite, sometimes brecciated and sometimes gneissic, and some grades into coarse-grained hornblende-biotite monzonite. Pods or white crystalline marble 3 to 10 feet thick occur at irregular intervals. At B a fault brings white crystalline limestone up against the diorite. Between B and C, pods and lenses of white limestone are interspersed with about equal amounts of fine-grained gneissic diorite. From C north to the camp the rock consists of medium- to coarse-grained diorite with a well-developed vertical foliation that strikes about 15 degrees west of north. This diorite contains numerous hornblendite inclusions and narrow aplite dykes. Southeast along the coast from the quarry-site, limestone can be found to a point just south of the creek mouth at D.

Most of the so-called limestone is actually coarsely crystallized marble with grains as large as three-eighths inch in diameter. Much is pure white, but off-white to grey and fine-grained banding is present. The bands vary in thickness from an inch to several feet. Some pinch and swell slightly and many fade out along strike. The dark bands are impure and contain variable amounts of pyrite, pyrrhotite, phlogopite, forsterite, serpentine pseudomorphs of forsterite, spinel, and graphite flakes. The banding, most likely relict bedding, strikes about north 50 degrees east. Near the quarry the dip is between 35 and 46 degrees southwest and it steepens to 65 degrees at Quarry Bay. North of the fault through Quarry Bay, the banding strikes north 10 degrees east and dips 55 to 60 degrees northwest.

Exposed surfaces are insufficient to allow an accurate estimate of how much the production of pure limestone will be hampered by dykes and the dark bands. Similarly it is not possible to judge how fracturing would limit the size of blocks suitable for sawn marble.

When examined in the latter part of August, the work of beginning a quarry was under way. A face 400 feet long, parallel to the coast, and 15 feet high had been partially developed. The floor was about 20 feet above and 300 feet inland from the high-tide mark. Trees had been felled in a small area southwest of the face in preparation for stripping. A small wharf had been built and the construction of a larger one for barge-loading would present no apparent problems.

Six samples were collected for analysis. No. 1 consisted of chips at 6-inch intervals across 20 feet perpendicular to the banding, at the south end of the quarry face, starting 5 feet above the dyke. No. 2 consisted of chips at 6-inch intervals across a 40-foot-thick band of coarse-grained white rock in the quarry face, 200 feet northwest of No. 1 and about 30 feet stratigraphically below it. Sample No. 3 consisted of chips across 5 feet of a dark-grey band of impure stone immediately overlying No. 2. Sample No. 4 consisted of chips at 1-foot intervals along 100 feet of road cut starting at the northwest end of the quarry. This sample direction angled across grey and white bands. No. 5 sample consisted of random chips from a fresh road cut between 750 and 850 feet northwest of the quarry. Sample No. 6 consisted of random chips gathered across 150 feet of freshly broken face at the old quarry-site at Quarry Bay. This face is across the front of a 40- to 50-foot high bluff of vaguely banded limestone.

Sample	CaO	MgO	Insol.	R_2O_3	Fe_2O_3	MnO	P_2O_5	Ig. Loss	S	H_2O (105° C.)
1	54.82	0.54	0.11	0.06	0.05	Trace	0.01	43.76	0.002	0.01
2	53.93	1.33	0.17	0.09	0.05	Trace	0.01	43.75	0.002	0.01
3	39.70	12.72	5.38	1.67	0.49	Trace	0.08	40.24	0.110	0.07
4	53.99	0.99	0.75	0.21	0.10	Trace	0.01	43.21	0.005	0.04
5	53.15	1.87	0.55	0.11	0.07	Trace	0.01	43.72	0.002	0.01
6	51.22	3.38	0.85	0.43	0.08	Trace	0.01	43.74	0.005	0.01

TERRACE CALCIUM PRODUCTS LTD. QUARRY

LOCATION: Lat. 54° 30′ Long. 128° 28′ (103I/9W)

On Copper Mountain, just north of Thornhill Mountain, 4½ miles east of Terrace at 2,900 to 3,100 feet elevation.

ACCESS: By road, 10 miles from Terrace via the British Columbia Telephone Company road to Thornhill Mountain microwave-station.

OPERATOR: TERRACE CALCIUM PRODUCTS LTD., P.O. Box 1269, Terrace.

WORK DONE: Limestone products for the local market quarried, transported, crushed, and bagged; some test work done by the Non-metallic Minerals Section, Department of Energy, Mines and Resources, Ottawa.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 309.

NECOSLIE RIVER AREA

By J. W. McCammon

LOCATION: Lat. 54° 22′ Long. 124° 0.6.8′ (93K/8E)

Limestone outcrops at several places along the road up the north side of the Necoslie River, 7 to 10 miles southeast of Fort St. James.

ACCESS: Necoslie River forest access road.

DESCRIPTION:

The outcrops are along the southwest edge of a long band of Pennsylvanian(?)-Permian Cache Creek Group limestone that extends northwesterly for many miles through the central part of British Columbia at Fort St. James.

The first outcrop begins north of the road at a point 6.7 miles from the highway turn-off at the Necoslie River bridge, just south of Fort St. James. The limestone forms a rounded 500-foot-high hill separated by low land from a main ridge one-quarter to one-half mile farther north. The hill extends eastward for about three-quarters of a mile parallel to and between 200 and 300 feet from the road. Trees and brush have been partially burned off the hill and rock is exposed spottily over much of it. A small quarry has been opened up on the face of a 40-foot-high bluff at the west end of the hill.

The limestone is mostly light-grey medium- to fine-grained crystalline rock. It weathers light grey and is white on surfaces which had been exposed to intense heat from the forest fire. Light-coloured chert, in irregular patches 1 to 6 inches wide and up to a foot long, are fairly common, though not abundant, in most exposures. In the quarry face an irregular zone is brecciated and displays considerable iron staining. Many micro-fossils are visible in thin-sections of the rock. One sample, consisting of chips collected at 2-foot intervals across the 50-foot-wide face of the quarry, had the following chemical composition: CaO—54.82; MgO—0.24; Insol.—0.75; R_2O_3—0.19; Fe_2O_3—0.10; MnO—0.03; P_2O_5—0.05; S—0.003; Ig. loss—43.38; H_2O (105° C.)—0.02. A second sample, consisting of chips gathered at random from the top of the hill, had the following composition: CaO—55.22; MgO—0.36; Insol.—0.12; R_2O_3—0.25; Fe_2O_3—0.04; MnO—trace; P_2O_5—0.11; S—0.001; Ig. loss—43.69; H_2O (105° C.)—0.03.

Eastward along the road more limestone outcrops at the base of a slope adjacent to the north side of the road between 8.7 and 9.1 miles from the highway junction. The rock is generally light grey and medium to fine grained. In a few places it is black with a distinct petroliferous aroma. Some cherty inclusions and scattered white calcite veins are present. Exposures are small and spotty, but overburden does not appear to be deep. Forest cover is moderate, poplar and brush near the road and evergreens higher up the slope. One sample, consisting of chips collected at random along 125 feet of road cut just east of mile 8.7 had the following chemical analysis: CaO—51.66; MgO—0.14; Insol.—6.42; R_2O_3—0.29; Fe_2O_3—0.12; MnO—0.06; P_2O_5—0.03; S—0.011; Ig. loss—40.78; H_2O (105° C.)—0.02.

The rock exposed at the quarry-site is too highly fractured to serve as a source of blocks for use as marble.

DAHL LAKE QUARRY

By J. W. McCammon

Location: Lat. 53° 47.5′ Long. 123° 17′ (93G/14W)
On hill at northeast corner of Dahl Lake, 22 miles southwest of Prince George.

Access: A 6-mile-long gravel road from the quarry joins Highway No. 16 on the the south side, 22 miles west of Prince George.

Operator: KOKANEE CONTRACTING LIMITED, 3905—18th Avenue, Prince George.

Work Done: 27,000 tons of limestone shipped.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 310.

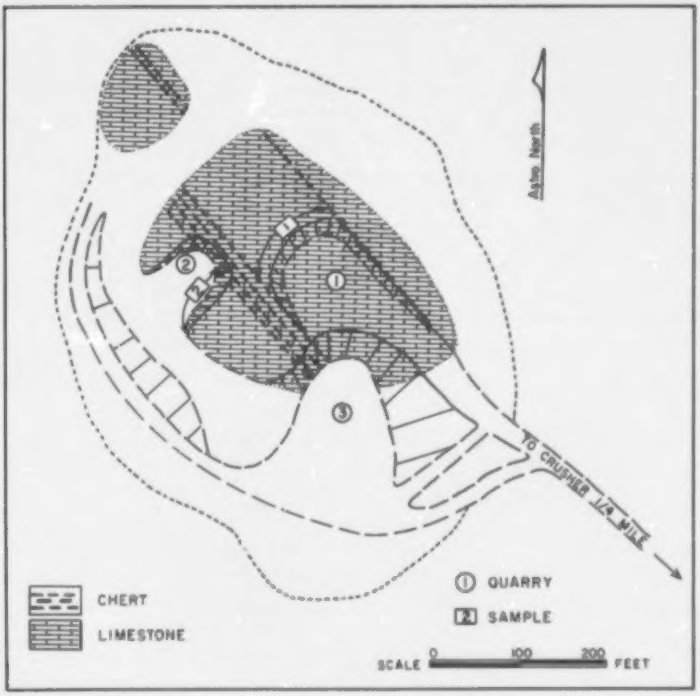


Figure 44. Dahl Lake limestone quarry.

DESCRIPTION:

At this property, limestone is exposed on two knolls that form a nose off the northwest corner of a low hill at the northeast corner of Dahl Lake. The quarry is at 2,900 feet elevation on the southwest slope, near the top of the west knoll. A portable crushing and screening plant has been set up at the southeast corner, near the base, of the second knoll, one-quarter mile east of the quarry. Few bedrock exposures occur except for a cliff face and strippings on the hump northwest of the crusher and in the stripped areas and trenches near the quarry.

In mid-July, 1969, the quarry development was as shown in the accompanying pace-compass sketch (*see* Fig. 44). Most of the rock exposed is medium-grained crystalline to fine-grained dense black, or mottled black and light-grey crinoidal limestone. Individual beds are not readily distinguishable. Scattered vuggy patches filled with clay and coarsely crystalline calcite occur here and there. Some pyrite has been found. Jointing is strongly developed in several directions.

Several light-coloured chert bands trend northwesterly across the main limestone exposure. These are quite persistent and most can be traced across the quarry area. A few short offsets indicate minor fault movement. The bands vary between 1 inch and 2 feet wide. The largest band, 2 feet wide, forms the northeast wall of No. 1 quarry and can be traced along strike to the northwest limit of outcrop. Between No. 1 and No. 2 quarries more than a dozen bands, some multi-layered, form a zone 30 feet wide. These chert bands probably represent original bedding in the rock series. The beds on the west of No. 1 quarry are almost vertical, while on the east side they dip very steeply west.

Quarries 1 and 2 were being worked at the time of examination. No. 1 quarry was 110 feet wide with a 20- to 25-foot-high face. No. 3 quarry was 15 feet below No. 1. No. 2 quarry was 50 feet wide and 100 feet long with a 15- to 20-foot high face. Sample No. 1 consisted of chips gathered at 5-foot intervals across 110 feet along the top of No. 1 quarry face, perpendicular to the strike of the chert bands. Sample 2 consisted of chips collected at 5-foot intervals along 100 feet at the base of the east wall of No. 2 quarry, perpendicular to the chert bands.

A rough road extends northwest from the quarry clearing for 1 mile to the Norman Lake access road. Limestone is exposed in the road bed for one-quarter mile northwest of the quarry. Limestone is also exposed in short trenches bulldozed southwestward down the slope perpendicular to the road at points 180, 250, and 500 feet northwest of the quarry. In addition, an area about 150 feet in diameter, 100 feet east of the road at the 500-foot point has been stripped to limestone bedrock. Sample No. 3 consisted of chips picked up at random in this latter area.

Stripping, trenching, and a bare bluff around the southwest corner expose limestone on the hump immediately northwest of the crusher. Preliminary sampling indicated a moderately high dolomitic content in the rock, so it is not being quarried at present. The limestone varies from light grey to almost black. Most of it contains many $\frac{1}{16}$- to $\frac{1}{2}$-inch-wide crinoid plates. These tend to look almost black. In places, cream-coloured areas, apparently high in magnesia, can be found. One 3-foot-wide vertical andesite dyke, that strikes north 10 degrees west, is exposed for 50 feet on top of the knob 500 feet northwest of the crusher. Three samples were taken in this area. The first consisted of chips collected at 2-foot intervals along 50 feet on a northeast bearing at a point 500 feet north 50 degrees west from the crusher. It is labelled No. 4 in the table. Sample No. 5 consisted of chips gathered across a 30-foot-wide by 100-foot-long creamy coloured patch on the upper part of the bluff face about 200 feet southwest of sample 3. This was suspected of being high in magnesia. Sample 6 consisted of chips collected across 90 feet of smooth weathering, dark crinoidal stone, 30 feet west of sample 4.

At the crushing plant the limestone is crushed, screened, and washed to produce a clean product sized to minus ¾-inch and plus 5/16-inch. This is hauled by trucks with trailers in 25-ton loads to Prince George where it is used by the Intercontinental and Prince George pulp and paper mills. A grab sample from the processed stockpile had the composition shown as No. 7 in the following table.

Sample	CaO	MgO	Insol.	R_2O_3	Fe_2O_3	MnO	P_2O_5	Ig. loss	S	H_2O (105° C.)
1	55.03	0.14	0.77	0.15	0.06	Trace	0.04	43.48	0.003	0.01
2	54.49	0.60	0.36	0.13	0.06	Trace	0.03	43.63	0.002	0.03
3	55.16	0.36	0.32	0.15	0.04	Trace	0.04	43.66	0.004	0.06
4	49.95	4.59	0.52	0.32	0.03	Trace	0.16	44.18	0.001	0.07
5	40.96	12.10	1.20	0.26	0.06	Trace	0.05	45.39	0.001	0.01
6	54.88	0.64	0.45	0.12	0.05	Trace	0.06	43.67	0.002	0.01
7	54.63	0.40	1.19	0.24	0.12	Trace	0.05	43.29	0.002	0.08

REDROCKY CREEK QUARRY

By J. W. McCammon

Location: Lat. 54° 38′ Long. 122° 42.5′ (93J/10E)

One-quarter mile northeast of John Hart highway, just north of bridge over Redrocky Creek, 55 miles north of Prince George.

Access: John Hart highway from Prince George.

Owner: Rosario J. Lacerte.

Operator: CALLAZON INDUSTRIES LTD., Prince George.

Work Done: Area 250 feet in diameter stripped on top of hill; some limestone quarried; portable crushing and screening plant erected; large stockpile of ½-inch crushed rock produced.

References: *Minister of Mines, B.C.*, Ann. Rept., 1957, p. 85; *Geol. Surv., Canada,* Map 2-1962, McLeod Lake.

Description:

Limestone forms a 1,000-foot-long bluff between the John Hart highway and the West Coast Transmission pipe-line right-of-way just north of Redrocky Creek. The bluff rises 300 feet above the highway about one-quarter mile northeast of it. The limestone can be traced for nearly one-half mile along the pipe-line right-of-way.

The limestone consists mainly of a dark, fine-grained matrix crowded with round and ellipsoidal pellets 1 to 10 millimetres in diameter. The pellets are composed of ankerite or ferroan dolomite. Considerable iron stain streaks all weathered surfaces. Fractures are numerous and closely spaced. On Geological Survey of Canada Map 2—1962, McLeod Lake, this limestone is shown as being of Upper Ordovician to mid-Silurian age.

Rock was blasted in the cleared area on top of the bluff and bulldozed over the edge to form a pile near the base of the bluff where a crushing and screening plant was set up. Rock was passed through the plant and stacked in an open stockpile.

A grab sample from the stockpile had the following composition: CaO=50.96; MgO=2.23; Insol.=2.77; R_2O_3=0.83; Fe_2O_3=0.62; MnO=trace; P_2O_5=0.03; Ig. loss=42.87; S=0.015; H_2O (105° C.)=0.07.

HIGHWAY 16

By J. W. McCammon

Location: Lat. 53° 54′ Long. 121° 39′ (93H/13E)
On Highway No. 16 at a point 45 miles east of Prince George airport.

Access: Highway No. 16.

Description:

Limestone outcrops at a few places along Highway No. 16 east of Purden Lake. The best exposure is in a road cut along the south side of the highway, 45 miles east of the Prince George airport. At this point the limestone is visible for one-quarter mile along the base of a hill that rises to the south. North of the road is flat, newly logged-off, drift-covered ground.

The rock is dense, black, well-bedded limestone of uniform appearance. The beds are of variable thicknesses, from a few inches to several feet. They strike north 70 degrees west and dip 25 degrees north.

A sample of chips collected at 1-foot intervals across a stratigraphic thickness of 20 feet of beds had the following composition: CaO—53.01; MgO—0.84; Insol. —1.78; R_2O_3—0.70; Fe_2O_3—0.53; MnO—trace; P_2O_5—0.03; Ig. loss—42.74; S—0.13; H_2O (105° C.)—0.06.

COBBLE HILL QUARRY

Location: Lat. 48° 40.6′ Long. 123° 37.4′ (92B/12E)
On Lot 9, Range 3, at southwest corner of Cobble Hill, 2 miles southwest of Cobble Hill station.

Owner: OCEAN CEMENT LIMITED (B.C. Cement Division), North Foot of Columbia Street, Vancouver 4.

Work Done: Limestone produced for use in Bamberton cement plant, 528,589 tons. The lighting and heating were improved in the locker room.

DOMTAR QUARRY

Location: Lat. 49° 47.2′ Long. 124° 37.1′ (92F/15E)
Blubber Bay, at north end of Texada Island.

Owner: DOMTAR CHEMICALS LIMITED (Lime Division), 470 Granville Street, Vancouver 1; M. T. Pero, plant manager.

Work Done: Limestone produced and shipped, 648,990 tons.

BEALE QUARRY

Location: Lat. 49° 45′ Long. 124° 31.9′ (92F/15E)
On north coast of Texada Island, 1 mile southeast of Vananda.

Owner: CANADA CEMENT LAFARGE LTD. (Quarry Division), 1051 Main Street, Vancouver 4; W. D. Webster, quarry superintendent.

Work Done: A new double-deck sizing screen and an additional conveyor belt were installed. Limestone quarried, 1,250,000 tons; limestone shipped, 845,500 tons.

IDEAL CEMENT QUARRY

Location: Lat. 49° 42.9′ Long. 124° 33.8′ (92F/10E)
On Lot 25, Texada Island, about 2½ miles south of Vananda.

Owner: IDEAL CEMENT COMPANY (Rock Products Division), 610, 1200 West Pender Street, Vancouver 1; J. K. Johnson, quarry superintendent.

Work Done: Wooden structures at crushing plant at Marble Bay were replaced by steel. Limestone quarried, 882,000 tons; limestone shipped, 840,000 tons. The diesel drive for one crusher was replaced with a 300-horsepower electric motor.

IMPERIAL LIMESTONE QUARRY

Location: Lat. 49° 31.7′ Long. 124° 44.4′ (92F/10E)
Summit of hill on Lot 500, three-quarters of a mile southwest of Spratt Bay on the north coast of Texada Island, 2 miles southeast of Vananda.

Owner: IMPERIAL LIMESTONE COMPANY LIMITED, 5427 Ohio Avenue South, Seattle, Washington 98134; A Diewert, quarry superintendent.

Work Done: Quarry operated on Lot 500, stucco and whiting produced in plant at Vananda dock, whiting and coarse limestone produced at Spratt Bay. Limestone produced, 187,000 tons.

FRASER VALLEY LIME SUPPLIES

Location: Lat. 49° 12′ Long. 121° 43.2′ (92H/4E)
East side Highway No. 1, three-quarters of a mile east of Popkum.

Owner: FRASER VALLEY LIME SUPPLIES, 976 Adair Avenue, Coquitlam.

Work Done: Limestone produced, crushed, and sized for feed and industrial filler, 7,334 tons.

RAMSHEAD QUARRIES

By E. Sadar

Location: Lat. 51° 04.5′ Long. 121° 38′ (92P/4E)
51° 02.8′ 121° 41′
One quarry in calcareous tufa on Lot 268, 2½ miles by road southwest of Clinton, and a second quarry in limestone on Lot 7635, 5½ miles southwest of Clinton.

Owner: RAMSHEAD QUARRIES LIMITED, 402 West Pender Street, Vancouver 3.

Work Done: Stripping, crushing, and sizing 3,110 tons of material, most of which was stockpiled.

References: *Minister of Mines, B.C.*, Ann. Repts., 1958, p. 92; 1967, p. 309; *Canada Dept. of Mines and Resources*, Bureau of Mines Publ. No. 811, Limestones of Canada, Pt. V, p. 224, by M. F. Goudge.

Description: A small crushing, sizing, and bagging plant is located at the quarry on the Pacific Great Eastern railway. Material is scooped from the quarry using a front-end loader and dumped onto a conveyor. Because of the soft cellular nature of the deposit no blasting is necessary. Three to four people were employed stripping, crushing, and stockpiling approximately 3,110 tons of material, of which 110 tons was sold or used for samples and test work.

HARPER RANCH QUARRY

Location: Lat. 50° 40.3′ Long. 120° 03.9′ (92I/9E)
On hillside north of South Thompson River, 11 miles east of Kamloops.

Access: By road on north bank of South Thompson River, 11½ miles east of Highway No. 5.

Owner: CANADA CEMENT LAFARGE LTD., P.O. Box 728, Kamloops.

WORK DONE: Quarry prepared for operation and haulage roads to cement plant constructed.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, p. 267; 1968, p. 321.

DESCRIPTION: Large lens of limestone in Cache Creek Group rocks.

ANNIS INDUSTRIES LTD.

By David Smith

LOCATION: Lat. 50° 26.8′ Long. 119° 49.5′ (82L/5W)
Seven hundred feet above the valley, 2½ miles southwest of Westwold.

ACCESS: By road, 1.7 miles from the Salmon River road, 1.8 miles south of Westwold.

OWNER: ANNIS INDUSTRIES LTD., Monte Lake; D. Spankes, president.

WORK DONE: Production in 1969: 5,000 tons of rock, sold locally as stucco dash, roof rock, and driveway material.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 322.

SWIFT CREEK LIMESTONE QUARRY

LOCATION: Lat. 49° 4.5′ Long. 117° 17′ (82F/3W)
On west side of Salmo River, just south of mouth of the South Fork of Salmo River.

OWNER: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street S.E., Calgary, Alta.

WORK DONE: Quarry opened up for production.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1962, p. 154.

MARL

CHEAM MARL PRODUCTS

LOCATION: Lat. 49° 11.5′ Long. 121° 45′ (92H/4W)
Cheam Lake near Popkum.

ACCESS: Road 1 mile north off Highway No. 1 at Popkum.

OWNER: CHEAM MARL PRODUCTS LIMITED, 13 Fletcher Street South, Chilliwack.

WORK DONE: Marl produced, 23,430 tons; marl shipped, 17,105 tons.

DESCRIPTION: The material mined consists of a post-glacial deposit of marl that forms the bed of former Cheam Lake, drained several years ago. Marl and topsoil are excavated by two small draglines, spread on an asphalt drainage pad, and air dried for a year. It is then loaded into trucks by a third dragline and delivered to consumers.

PHOSPHATE

WW

MINING DIVISION: Fort Steele.

LOCATION: Lat. 49° 27.5′ Long. 114° 42′ (82G/7E)
At 6,000 to 6,800 feet elevation on ridge, one-half mile north and east of Barnes Lake, 5 miles southwest of Corbin.

CLAIMS: WW 1 to 110.

ACCESS: Thirty miles by road from Natal via Corbin.

OPERATOR: WESTERN WARNER OILS LTD., 215A Tenth Street N.W., Calgary 41, Alta.

Work Done: One 50-foot-long trench bulldozed, 1 mile of road constructed, and six holes totalling 756 feet diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 324.

Description: Oolitic phosphatic shale near Spray River-Rocky Mountain Formation contact.

RA

Mining Division: Fort Steele.

Location: Lat. 49° 23.5′ Long. 114° 42.5′ (82G/7E)

On fork of Flathead River directly opposite mouth of Foisey Creek, 4¾ miles northwest of Flathead townsite.

Claims: RA 1 to 12.

Access: Forty miles by road from Natal via Corbin.

Operator: MEDESTO EXPLORATION LTD., 215A Tenth Street N.W., Calgary 41, Alta.

Work Done: One hole, 227 feet long, diamond drilled.

Reference: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 324.

Description: Sedimentary phosphate deposit.

PH

Mining Division: Fort Steele.

Location: Lat. 49° 26.6′–28.5′ Long. 114° 39′–40.7′ (82G/7E)

On Michel Creek, 22 miles by road south of Michel.

Claims: PH.

Access: By road, 3 miles south from Corbin.

Operator: MEDESTO EXPLORATION LTD., 215A Tenth Street N.W., Calgary, Alta.

Work Done: Two drill-sites prepared and two core drill-holes drilled.

SAND AND GRAVEL

Data on sand and gravel production are presented on the following pages. The abbreviations used in the table for the types of sand and gravel produced are as follows: AA=asphalt aggregate; SA=sized aggregate; WS=washed and sized aggregate; RP=run-of-pit materials; AP=asphalt paving mix; RM=readymix concrete.

Sand and Gravel Pits

Location	Operator	Equipment and Plant	Men	Production
Kitkatlah Gravel Pit—Porcher Island	Rupert Cement Products (1965) Ltd.	Tractor, conveyor, and barge	3	RP=14,790 yd.
Sandspit—Moresby Island	Department of Highways	Front-end loader	2	RP.
Miller Creek—Graham Island	Department of Highways	Front-end loader	2	RP.
Construction Pit—Graham Island	Department of Highways	Front-end loader, tractor, and crusher	7	SA=45,000 yd.
Terrace Highway District—				
(1) Mile 1.0, Lakelse Lake Road No. 53	Department of Highways	Front-end loader	2	RP.
(2) Mile 6.3, Kitimat Highway No. 25	Department of Highways	Front-end loader	2	RP.
(3) Mile 2.6, Highway No. 16 East	Department of Highways	Front-end loader	2	RP.
(4) Mile 7.3, Lakelse Lake Road No. 53	Department of Highways	Front-end loader	2	RP.
(5) Mile 3.0, Old Airport Road No. 2	Department of Highways	Front-end loader	2	RP.
(6) Mile 4.0, Kalum Lake Road No. 3	Department of Highways	Front-end loader	2	RP.
(7) Mile 11.5, Kitimat Highway No. 25	Department of Highways	Front-end loader	2	RP.
(8) Mile 10.0, Highway No. 16 West	Department of Highways	Front-end loader	2	RP.
(9) Mile 29.0, Highway No. 16 West	Department of Highways	Front-end loader	2	RP.
(10) Mile 2.3, Beam Station Road No. 90	Department of Highways	Front-end loader	2	RP.
(11) Mile 1.9, Kitimat Village Road No. 200	Department of Highways	Front-end loader	2	RP.
(12) Lot 24, Usk	Department of Highways	Front-end loader	2	RP.
(13) Mile 8.0, Highway No. 16 East	Department of Highways	Front-end loader	2	RP.
(14) Mile 11.0, Highway No. 16 East	Department of Highways	Front-end loader	2	RP.
(15) Mile 23.7, Highway No. 16 East	Department of Highways	Front-end loader	2	RP.
(16) Mile 19.9, Kitimat Highway No. 25	Department of Highways	Front-end loader	2	RP.
(17) North Boundary of Kitimat Municipality	Department of Highways	Front-end loader	2	RP.
(18) Inside Kitimat Municipality	Department of Highways	Front-end loader	2	RP.
(19) Canadian National Railways, Mile 42 West	Department of Highways	Front-end loader	2	RP.
(20) Mile 4.0, Lakelse Lake Road No. 53	Department of Highways	Front-end loader	2	RP.
(21) Mile 1.0, Crescent Drive	Department of Highways	Front-end loader	2	RP.
(22) Mile 0.4, Crescent Drive	Department of Highways	Front-end loader	2	RP.
Sandhill—Kitimat	L. G. Scott and Sons Construction Ltd.	Front-end loaders, screening, crusher, and paving plant	5	SA and AP=50,000 tons.
Minette Bay Rock Quarry	L. G. Scott and Sons Construction Ltd.	Breaking and loading	6	RP=2,000 tons.
Sandhill—Kitimat	Ocean Cement Limited	Sauerman dragline, conveyors, washing, screening, readymix concrete, concrete bricks	5	RP, WS, RM=100,000 yd.
Highway No. 16—Carnaby	Department of Highways	Front-end loader	2	RP.
Coquitlam Municipality—				
(1) West end of Westwood Road	Corporation of the District of Coquitlam	Front-end loader, portable crushing and screening	1	RP and SA=45,500 yd.
(2) Pipeline Road, 3½ miles north of Lougheed Highway	Jack Cewe Ltd., P.O. Box 1100, Coquitlam	Shovel, screening, crushing, paving plant	7	RP, SA, and AP.
(3) Pipeline Road, 3 miles north of Lougheed Highway	S & S Sand and Gravel Limited, R.R. 1, Port Coquitlam	Front-end loader, crushing, screening, and washing	8	RP, WS, and SA.
(4) Pipeline Road	Columbia Bitulithic Limited	Front-end loader, crushing and screening	—	SA and AP.

Coquitlam Municipality—*Continued*				
(5) Pipeline Road, 1½ miles north of Lougheed Highway	Allard Concrete Construction Co., 1930 Pitt River Road, New Westminster	Front-end loader, crushing and screening	9	RP and SA.
(6) Pipeline Road, 1 mile north of Lougheed Highway	Canada Cement Lafarge Ltd., 1051 Main St., Vancouver	Front-end loaders, 600-tons-per-day washing and screening, readymix	15	SA, WS, and RM=700,000 yd.
(7) Fraser River at Mary Hill, 2 miles south of Port Coquitlam	Ocean Cement Limited, 1295 West 77th Ave., Vancouver	Shovels, etc., 500-tons-per-hour processing plant, barge-loading facilities	55	WS=1,330,000 yd.
Annacis Island—Fraser River at Annacis Island	Willson Construction Co. Ltd., 4984—48th Ave., Ladner	Front-end loader	2	RP=290,200 yd.
Maple Ridge Municipality—				
(1) 33rd Road, 1 mile south of Silver Valley	S. Berto, Haney	Shovel	1[1]	RP=8,000 yd.
(2) Grant Hill, 1 mile east of Albion and also adjoining Kirkpatrick pit	Corporation of the District of Maple Ridge	Front-end loader, crushing	—	RP and SA=52,705 yd.
(3) Grant Hill, ½ mile north of municipal pit	McIntosh Sand and Gravel Limited, 10412 Industrial Ave., Whonock	Front-end loaders, crushing and screening	3	RP and SA=30,000 yd.
(4) Lougheed Highway, south of Grant Hill	Walske Ready Mix Ltd., R.R. 1, Haney	Shovel, front-end loader, crushing, washing, and screening, readymix	9	WS and RM=110,375 yd.
(5) Alouette River, east end of 27th St.	Kirkpatrick Sand and Gravel Ltd., P.O. Box 188, Haney	Front-end loader	2[1]	RP.
(6) 1 mile north of Websters Corners, ½ mile east	Kirkpatrick Sand and Gravel Ltd., P.O. Box 188, Haney	Shovel, washing and screening	2[1]	RP and WS.
(7) Lougheed Highway, 1 mile east of Whonock	W. A. George, Whonock	Front-end loader	1[1]	RP=2,493 yd.
Mission Municipality—				
(1) 2.3 miles south of Steelhead, Dewdney Truck Road	Cannon Contracting Ltd., P.O. Box 178, Mission	Front-end loader, crushing and screening	2[1]	RP and SA=6,509 yd.
(2) 2.2 miles south of Steelhead, Dewdney Trunk Road	M. Catherwood, R.R. 1, Mission		1[1]	RP.
(3) 1 mile east of Stave Falls, powerhouse	Corporation of the District of Mission		—	Sand=600 yd.
(4) 3 miles east of Stave Falls, powerhouse	Corporation of the District of Mission		—	RP=9,600 yd.
(5) 2 miles east of Ruskin, powerhouse	Corporation of the District of Mission	Front-end loader	2	RP and SA=82,600 yd.
Kent Municipality—				
(1) West end of Cemetery Road, south of Mount Agassiz	Corporation of the District of Kent	Shovel	2	RP=9,187 yd.
(2) McCallum Road, 1½ miles west of Harrison Hot Springs road	Danielson Contractors Ltd., McCallum Road, Agassiz	Front-end loader	2[1]	RP=9,585 yd.
(3) McCallum Road	Department of Highways, Chilliwack	Front-end loader	4	RP and SA=7,600 yd.
Indian Reserve No. 1—Cheam View	George Beamin	Front-end loader, screening and washing	1	RP, SA, and WS.
Chilliwhack Municipality—				
(1) Arnold Road, bank of Fraser River	P. Heppner & Son, 7113 Sumas Prairie Road, Sardis	Front-end loader	3[1]	RP=5,000 yd.
(2) Fraser River bars, etc.	Chilliwack Gravel Sales Ltd.	Dragline and front-end loader	2	RP and WS.
(3) Hope—8 miles north of Hope, Fraser River bars	Channel-Bar Mining Co. Ltd.	Front-end loader, trucks	4	RP and WS.
Sumas Municipality—At foot and east of Taggart Peak	Various operators, but owned by H. Quadling, R.R. 1, Yarrow	Front-end loader, screening	3[1]	RP and SA=32,642 yd.

---

[1] Part time.

Sand and Gravel Pits—Continued

Location	Operator	Equipment and Plant	Men	Production
Matsqui Municipality—				
(1) 1 mile east of Abbotsford	Blackham's Construction Ltd., Abbotsford	Front end loaders, screening, washing, and crushing	8	RP, SA, and WS=216,288 yd.
(2) Tretheway Road, ¾ mile north of Clearbrook	Department of Highways, Chilliwack	Front end loader	4	RP and SA=5,800 yd.
(3) Clearbrook Road, ½ mile north of border	Abbotsford Gravel Sales Ltd., P.O. Box 8, Abbotsford	Scraper, front end loader, screening, washing, and readymix plant of Totem Trucking Limited	3	WS, RP, and RM=41,401 yd.
(4) 12th Ave., ¼ mile west of Clearbrook Road	Valley Rite-mix Ltd., P.O. Box 430, Clearbrook	Scraper, front end loader, screening, washing, and crushing, readymix plant	3	RP, SA, WS, and RM.
(5) Corner of LeFeuvre Road and Eighth Ave., Caplette pit	Ernie's Trucking, Aldergrove	Front end loader	1	RP=21,100 yd.
(6) LeFeuvre Road	Corporation of the District of Matsqui	Front end loader	—	RP and SA=129,675 yd.
Langley Municipality—				
(1) Kinch Road at 36th Ave. and Jackman Road	Corporation of the Township of Langley	Front end loader, crushing and screening	5	RP and SA=112,009 yd.
(2) North of the northeast corner of Jackman Road and Eighth Ave.	Aldergrove Cement Tile Products; S. Omelaniec, manager	Front end loader, screening	1[1]	RP and WS=2,306 yd.
(3) ¼ mile north of corner of Jackman Road and Eighth Ave.	J. Craig, Trans-Canada Highway, Langley	Front end loader	1[1]	RP=3,020 yd.
(4) Dogwood Ave., off Brown Road	Kitsul Bros. Gravel Sales Ltd., 24306 Fraser Highway (R.R. 3), Langley	Front end loader	2[1]	RP=40,000 yd.
(5) Glen Valley Road at 252nd St.	Fort Langley Aggregates; W. Sager, 25394 River Road (R.R. 6), Langley	Dragline	7	RP.
(6) Glen Valley Road at 252nd St.	Rio Pacific Industries Ltd., Aggregates Division; C. MacDonald, 285—17th St., West Vancouver	Front-end loader, crushing, screening, and washing	3	RP, WS, and SA.
(7) 2962 Lambert Road (Highland pit)	Ocean Cement Limited, Langley Division, P.O. Box 429, Langley	Dragline, front-end loader, crushing, screening, and washing	8	RP, WS, and SA=148,933 yd.
(8) 32nd Ave. at Kinch Road	Oscar W. Rees, P.O. Box 847, Langley	Dragline, front-end loader	6	RP=154,906 yd.
(9) Boundary Road at Surrey boundary	Border Sand & Gravel Ltd., Boundary Ave. (R.R. 2), White Rock	Front-end loader, crushing, screening, and washing	3	RP and WS=62,793 yd.
Surrey Municipality—				
(1) Campbell River Road at Langley boundary	White Rock Sand and Gravel; C. E. Schuler, 2546—176th St. (R.R. 2), Cloverdale	Shovel, screening and washing	3	RP, SA, and WS=22,329 yd.
(2) 58th Ave. and 148th Road, Surrey	A & B Gravel Sales Limited; W. Breaks, 2027—152nd St., White Rock	Front end loader, screening and washing	1	RP.
(3) 24th Ave. at Langley boundary	Corporation of the District of Surrey	Front-end loader	—	RP and SA.
(4) 160th St., south of 24th Ave.	Corporation of the District of Surrey	Front-end loader	—	RP.
(5) 53rd Ave. at Delta boundary	Corporation of the District of Surrey	Front-end loader	—	RP.
(6) 28th Ave. at 194th St.	Corporation of the District of Surrey	Front-end loader	—	RP.
(7) 96th Ave. at Langley boundary	Corporation of the District of Surrey	Front-end loader	—	RP and SA.

Delta Municipality—				
(1) ½ mile west of Scott Road at 68th St.	Standard-General Construction (International) Limited, 6631—120th St., North Surrey	Front end loaders, crushing and screening	14	RP, WS, and SA=734,085 yd.
(2) Townsend	Western Peat Moss Ltd., P.O. Box 399, New Westminster		—	RP=120,000 yd.
(3) Corner First Ave. and 56th St.	Century Manufacturing Co. Ltd., Ladner	Front-end loader	1[1]	RP.
(4) 10720—84th Ave.	M & W Sand and Gravel Ltd., North Delta	Front-end loader	1[1]	RP=16,266 yd.
(5) Fraser River at Annieville	Sabre Bulldozing Ltd.	Front-end loader	2	RP=250,000 yd.
Howe Sound—				
(1) Britannia Beach	Construction Aggregates Ltd.	Bulldozers, front-end loader, crushing, washing, and screening	35	WS, RP, and SA=1,511,100 yd.
(2) Furry Creek	Construction Aggregates Ltd.	Bulldozers, front-end loaders, trucks, crushing and screening	12	SA=114,300 yd.
(3) Mamquam River	Coast Aggregates Ltd., Squamish	Front end loader and trucks	3	RP and SA=25,016 yd.
(4) Gower Point, Sechelt Highway	Gibsons Building Supply, Gibsons	Front-end loader	1[1]	RP.
(5) Veterans Road, Gibsons (Pacific pit)	Gibsons Building Supply, Gibsons	Front-end loader, screening and washing	3	RP and WS=13,000 yd.
(6) Cemetery Road, Gibsons	P & W Development Co. Ltd., P.O. Box 248, Gibsons	Front-end loader, crushing, screening, and readymix	1[1]	RP and RM.
(7) Porpoise Bay Road, Sechelt	L & H Swanson Ltd., P.O. Box 172, Sechelt	Front-end loader, screening and readymix	4	RP, SA, and RM=6,875 yd.
Jervis Inlet—Treat Creek	Delta Rock Ltd., c/o Jack Cewe Limited, P.O. Box 1100, Coquitlam		—	RP.
Lang Bay—1 mile north of Lang Bay	Burg & Johnson Ltd., 4728 Joyce Avenue, Powell River	Front-end loader, crushing, screening, and washing	3	WS=15,703 yd.
Powell River—				
(1) Off Allen Road, 3 miles northeast of Westview	P. Nassichuk	Screening	1[1]	RP, Sand=2,861 yd.
(2) Padgett Road	Coast Paving Ltd., P.O. Box 95, Powell River	Bulldozer, crushing and screening	6[1]	SA=15,000 yd.
Vancouver Island—				
(1) Port McNeill	Island Readimix Limited		—	SA and RM.
(2) Campbell River—south of Buttle Lake Road at Elk Falls Road	G & A Trucking Ltd.	Front end loader, crushing	—	RP.
(3) Campbell River—south of Buttle Lake Road at Elk Falls Road	C & R Concrete and Gravel Supplies Ltd., Frank Bencze	Front-end loader, crushing, screening, and washing	2	RP, SA, and WS.
(4) Campbell River—south of Buttle Lake Road at Elk Falls Road	Antonelli Trucking Ltd.	Front end loader	4	RP=17,268 yd.
(5) Painter's Spit, Campbell River	Island Readimix Limited	High-line scraper, front-end loader, crushing, washing, screening, and readymix	2	WS, SA, and RM.
(6) Cumberland Road near Courtenay	Island Readimix Limited	Bulldozer, mobile loader, crushing and screening	4	SA and RM.
(7) Parksville, 2 miles east	Fouty Bros.	Front-end loader	2	RP=11,338, WS=8,188 yd.
(8) Parksville, 2 miles east	James Jenkins	Bulldozer, front-end loader	1	RP.
(9) Alberni	Dolan's Limited Sand and Gravel	Front-end loader, ¾-yard shovel, washing and screening, trucks	10	RP and WS=97,546 yd.
(10) Nanaimo	Island Excavating Ltd.	Bulldozer, front-end loader	2	RP.
(11) Nanoose Bay	Canada Cement Lafarge Ltd.	Front-end loader	1[1]	RP.

---

[1] Part time.

Sand and Gravel Pits—Continued

Location	Operator	Equipment and Plant	Men	Production
Vancouver Island—*Continued*				
(12) Cassidy No. 4 pit, Island Highway at Cassidy	Ocean Cement Limited	Dragline, shovel, front-end loader, washing, crushing, and screening	4	WS, RP, and SA=434,194 yd.
(13) Duncan—Cowichan Lake Road	Butler-Lafarge Ltd., P.O. Box 435, Nanaimo	Front-end loader, crushing, washing, screening, and readymix	10	RP, WS, SA, and RM.
(14) Duncan—Kokallah	Armour & Sounders Limited, Duncan	Front-end loader, crushing, washing, screening, and readymix	7	RP, WS, SA, and RM=54,705 yd.
(15) Cordova Bay	Trio Ready-Mix Ltd.		3	WS, RM.
(16) Keating Cross Road	Butler Brothers Supplies Ltd.		7	RP, WS, RM, AA.
(17) Langford	Columbia Ready-Mix Ltd.		—	WS, RM.
(18) Metchosin	Midland Construction Co. Ltd.		3	RP, SA.
(19) Metchosin	Mattison and Patterson Ltd.		1	SA.
(20) Sooke—Sooke Road, east of Milnes Landing	Butler Brothers Supplies Ltd., P.O. Box 549, Sooke	Front-end loader, crushing, washing, screening, and readymix	3[1]	RP, WS, SA, and RM.
(21) Royal Bay	Ocean Cement Limited	Scraper, shovel, crushing, screening, and sizing	12	RP=163,270 yd., AA=78,823 yd., WS=394,244 yd.
Creston—Goat River	Louis Salvador & Sons	Front-end loader, screening	3	WS and RP.
Wynndel—Duck Creek	Louis Salvador & Sons	Front-end loader, screening	3	RP and RM.
Wynndel—Duck Lake	Frank Merriam & Sons	Front-end loader, screening	3	RP and AP.
Nelson—Anderson Creek	Premier Sand & Gravel Company Limited	Front end loader, crushing and screening	5	RP, WS, and RM.
Trail—Casino Road	McGauley Ready-Mix Concrete Company	Front end loader, crushing and screening	4	RP, WS, and RM.
Castlegar—Columbia River	McGauley Ready-Mix Concrete Company	Front-end loader, screening	3	RP, WS, and RM.
Salmo—Erie Creek	Valley Concrete Products Ltd.	Front-end loader, screening	2	Concrete pipe.

---

[1] Part time.

SILICA

FS No. 1 and No. 2

By J. W. McCammon

MINING DIVISION: Kamloops.

LOCATION: Lat. 50° 49′ Long. 119° 50.5′ (82L/13W)

At 3,810 feet elevation on the east bank of Nisconlith Creek, 9 miles due north of Pritchard.

CLAIMS: FS 1 and 2.

ACCESS: Cross South Thompson River from Highway No. 1 by bridge at Pritchard, drive 6½ miles northeast up river road to McGillivray Lake forest access road; thence north up access road to Mile-post 9.

OWNER: JOHN FILEK, 1013 Tranquille Road, North Kamloops.

WORK DONE: Trenching, stripping, shallow pits.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 330.

DESCRIPTION:

The deposit consists of a quartz stockwork in gneissic siliceous granite. It forms an isolated 70-foot-high mound, 500 feet west of the road, in the centre of a logged and burned-off flat area. The mound is 350 feet long on a north 10 degrees east bearing and averages 120 feet wide. The area around the mound is drift covered. The two claims extend in tandem northeast and southwest from a common initial post on the top near the south end of the mound.

The granite consists essentially of quartz, microcline, and perthite with a small amount of oligoclase, some biotite-chlorite, and minor accessory minerals. It has been highly fractured and the fractures are now filled with quartz to form a stockwork. On the east side of the mound the quartz is abundant and forms an almost solid mass with a few scattered streaks of gneiss. This extends southwesterly across the top of the mound in a zone 60 to 80 feet wide and 120 feet long. Toward the north and south ends of the mound the amount of quartz decreases so the mass becomes gneiss with a few parallel quartz veins. The west side of the mound is gneiss with very few narrow quartz veins.

The gneissosity of the granite trends 30 degrees west of north and is nearly vertical.

Jointing is strongly developed. In the granite, one vertical set of joints strikes north 40 degrees east and a second set strikes north 50 degrees west and dips steeply southwest. In the quartz, one set of joints strikes north 65 degrees east and dips 80 degrees north while another set strikes north 70 degrees west and dips 70 degrees south. The joint spacing in the quartz is from one-half inch to 2 feet, mostly less than 6 inches. The faces of the joints are usually rust stained.

No metallic minerals were seen in the quartz, although iron stain is abundant. Small crystal-lined vugs are occasionally found.

A bulldozer has been used to scrape along the east side of the mound and to strip off the south end of it. Some shallow pits have been blasted near the claim post.

One sample, consisting of equal-sized chips gathered at random from freshly broken material at the south end of the showing, had the following chemical composition: SiO_2—99.74; Fe (total)—0.064; Al_2O_3—Trace; CaO—*nil*.

HOPEFUL

MINING DIVISION: Kamloops.

LOCATION: Lat. 50° 55′ Long. 119° 01.5′ (82L/14E)

One mile east of Marble Point (Quartzite Point), near Sicamous narrows on east side of Shuswap Lake.

CLAIMS: HOPEFUL 1 to 3, LOLO 1.

ACCESS: By road, 7 miles from Sicamous.

OWNERS: G. H. GAVEL and W. CAMPBELL, of Sicamous.

WORK DONE: One acre stripped by bulldozer and four pits blasted 3 feet deep.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 330.

DESCRIPTION: Quartzite bed in biotite-hornblende gneiss.

IVAN (MOUNT ROSE SILICA)

By J. W. McCammon

MINING DIVISION: Vernon.

LOCATION: Lat. 50° 26.5′ Long. 119° 17′ (82L/6W)

Four miles due west of Armstrong, at 2,630 feet elevation on south side near centre of Mount Rose.

CLAIMS: IVAN Nos. 1 to 15.

ACCESS: Two and three-fifths miles by dirt road northwest off Grandview Bench road at bend, three-quarters of a mile west of Otter Lake.

OWNER: MOUNT ROSE MINING CO. LTD., P.O. Box 986, Vernon.

WORK DONE: Approximately 1,000 tons of quartz mined by four men in six months.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 331.

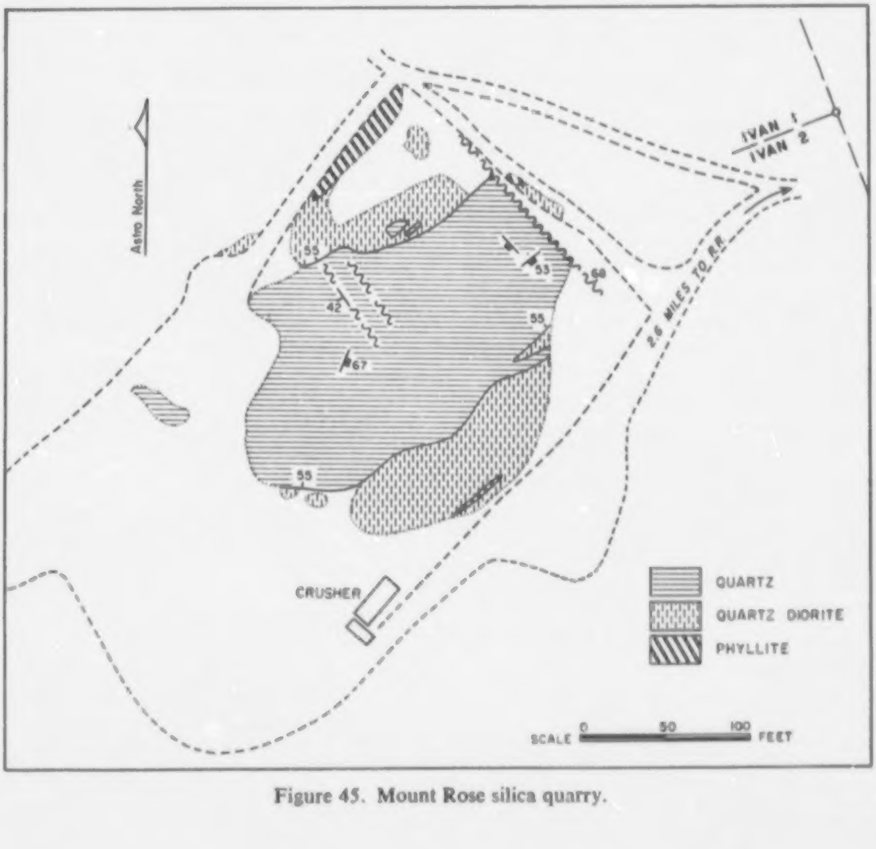

Astro North
IVAN 1
IVAN 2
2.6 MILES TO R.R.
55
42
67
53
68
55
55
CRUSHER
QUARTZ
QUARTZ DIORITE
PHYLLITE
SCALE
0
50
100
FEET

Figure 45. Mount Rose silica quarry.

DESCRIPTION:

The deposit consists of a quartz vein in a quartz-diorite intrusion in phyllite. It forms a 40-foot-high knob that projects through the overburden. No other bedrock is exposed for several hundreds of feet in any direction. The vein strikes north 70 degrees east and dips 55 degrees northwest. It is exposed for 250 feet along strike and for 100 feet in average plan width. To the northeast the vein ends at a fault and to the southwest it plunges under overburden. Contacts with the quartz-diorite walls are sharp and sinuous.

The quartz is massive and milky white. It contains a few small scattered pockets of galena, chalcopyrite, pyrite, pyrrhotite, and limonite. These minerals were noted chiefly along the hangingwall and near the fault at the northeast end of the exposure.

Fractures are numerous in the quartz and many fracture faces, especially near the fault, are iron stained.

The quartz diorite is medium-grained dark-grey rock with a slightly rusty weathered surface. In thin-section it is seen to be composed essentially of quartz and oligoclase-andesine with minor microcline, biotite, and muscovite. The feldspars are relatively fresh. A large mass of similar rock with small quartz veins forms bluffs about one-quarter mile northeast of the quarry.

The phyllite is fine-grained black rock dotted with tiny rust spots. It has slight foliation with some development of mica. The exposures in the quarry did not provide reliable attitude measurements. On a ridge 1,000 feet to the southeast the foliation, which appears to parallel bedding, strikes north 60 degrees west and dips 68 degrees southwest.

The fault at the northeast end of the quartz exposure strikes northwest and dips 68 degrees northeast. Striations on the face suggest the block to the southwest moved up and to the northwest relative to the other side. Fractures at 1- to 6-inch spacings are abundant in the quartz. Most fall into one of two sets. The strongest strike northwest, parallel to the fault, and dip about 42 degrees southwest. The largest of these show signs of some movement. The other major fracture set strikes northeast and dips 63 to 67 degrees southeast.

At the time of examination, quartz was being mined from a 5- to 15-foot-high face across the southwest end of the quartz outcrop. Hand-picked clean white rock was thrown into the bucket of a front-end loader by means of which it was dumped into a portable crushing and screening plant set up at the end of the road. The end product was sold as chips for stucco dash, exposed aggregate, and similar uses.

A sample consisting of equal-sized chips picked at random from loose muck in the quarry area had the following chemical composition: SiO_2—99.56; total Fe—0.076; Al_2O_3—0.27; CaO—0.056.

OLIVER SILICA QUARRY

By David Smith

MINING DIVISION: Osoyoos.

LOCATION: Lat. 49° 11.7′ Long. 119° 33.2′ (82E/4E)

One-quarter mile west of Highway No. 97, 1 mile north of Oliver.

CLAIM: GYPO (Lot 30985).

ACCESS: Road from Oliver.

OWNER: Cominco Ltd.

OPERATOR: PACIFIC SILICA LIMITED, 717 West Pender Street, Vancouver 1; field address, P.O. Box 39, Oliver; I. A. Hunter, manager.

WORK DONE: There has been no production from the pit in 1969. Reclaim from the stockpiles has been carried out continuously. Shipments: 3,102 tons in sacks; 9,820 tons in bulk.

Coal

CONTENTS

PAGE
GENERAL REVIEW OF COAL MINING AND EXPLORATION 409
REPORTS ON COAL MINES 410
  East Kootenay Inspection District 410
    Kaiser Resources Ltd. 410
      Michel Colliery 411
        Underground Mining Operations 411
        Open Pit Mining Operations 414
        Prospecting and Exploration 416
        Old Coal Preparation Plant 418
        New Coal Preparation Plant 419
        By-product Plant 419
    Coleman Collieries Limited 419
    Crows Nest Industries Limited 419
    Scurry-Rainbow Oil Limited 420
    Fording Coal Limited 420
    Cominco Ltd. (Elk River) 420
    Pacific Coal Limited 421
    Picklands Mather & Company 421
  Nicola-Princeton Inspection District 421
    Imperial Metals and Power Ltd. 421
  Northern Inspection District 421
    Bulkley Valley Collieries Ltd. 422
    Pine Creek Coal Ltd. 422
    Northern Coal Mines Limited 422
    Pine Pass Coal Co. Ltd. (Noman Creek) 423
    Brameda Resources Ltd. (Sukunka River Project) 423

LIST OF ILLUSTRATIONS

PHOTOGRAPHS

PLATE
XIA.—Harmer 1 open pit 415
XIB.—Coal-conveyor tunnel 415
XIIA.—Coal-conveyor, tunnel to raw coal silos 417
XIIB.—Coal-preparation plant 417

GENERAL REVIEW OF COAL MINING AND EXPLORATION

By A. R. C. James

In 1969 the coal-mining industry of British Columbia was in a period of transition from the static or declining role it had played in the economy since about 1950 to a new period of expansion and greatly increased production resulting from a sustained demand for coking-coal by the Japanese steel industry. The large

15-year contracts signed with Kaiser Resources Ltd., and the prospective contracts that will probably be negotiated with other companies in the East Kootenay coalfield would seem to indicate an immediate increase in output to about 5 million tons per year, followed by a further increase to 9 million tons and perhaps even higher. In order to carry out this expansion, a massive increase in facilities both at the mines and at the shipping points, together with far-reaching changes in railway transportation methods, has been necessary. The new developments and construction at the mines are described in the following pages. The year also saw the substantial completion of the new bulk-coal shipping terminals at Roberts Bank and at Neptune Terminal in Vancouver Harbour.

The gross production of coal in short tons in the Province during 1969 was 1,094,415 tons, a decrease of 26,331 tons or 2.2 per cent from 1968. Almost all of this output was from the Michel operations of Kaiser Resources Ltd., which produced 1,084,940 short tons. Michel Colliery comprised 11 producing mines in 1969, including five underground mines and six open pits. Five separate coal seams were mined in coal measures north and south of Michel Creek, designated as the C, D, No. 3, No. 7, and No. 10 (Balmer) seams.

The other producing mine was a small open-pit operation at the Goathorn Creek property of Bulkley Valley Collieries Ltd. near Telkwa in the Northern District. The production of coal from this operation was 9,475 tons.

Coal exploration has received a new impetus as a result of the more favourable outlook for the industry. Not only have exploration parties been active in the East Kootenay coalfield, but a number of other coal areas in the Province have been re-examined. Outside the East Kootenay area, perhaps the most significant discovery has been east of Sukunka River, 36 miles south of Chetwynd on the John Hart highway, where reserves of high-grade coking-coal in relatively flat-lying seams are indicated in the Gething Formation.

REPORTS ON COAL MINES

EAST KOOTENAY INSPECTION DISTRICT

KAISER RESOURCES LTD.

By R. W. Lewis and L. Wardman

G. E. Balsley, vice-president and general manager; P. J. Urso, open-pit manager; K. G. Donald, superintendent, Michel operations; J. Lawrie, manager of underground mines.

In 1969, coal production was confined to the Michel Colliery operation with run-of-mine coal being hauled by truck from the various underground mines and surface open pits to the coal-preparation plant at Michel. The other main activity of the company was the development of the new open-pit operation on Harmer Ridge, and the construction of the coal cleaning and loading facilities at Sparwood. This construction and development is scheduled to be completed by March, 1970, by which time Kaiser Resources Ltd. will be ready to meet its market commitments to the steel industries of Japan.

Throughout 1969 the company directed special attention to the improving of the appearance of the Natal Valley and the Michel Colliery precincts as a whole. Many old buildings and dwellings were dismantled and removed as they were vacated. A reclamation department was set up, means of restoring despoiled locations were being closely studied, and reclamation experimental work was in progress.

Michel Colliery.—(49° 114° N.W.) K. G. Donald, superintendent, Michel operations; J. Lawrie, manager of underground mines; J. Anderson, mine superintendent; R. Sieling, mine superintendent; C. Chakravatti, ventilation engineer; R. Taylor, safety officer.

The colliery is at Michel, 24 miles northeast of Fernie, and is on the Crowsnest Pass branch of the Canadian Pacific Railway. It is a large colliery which has been in operation since 1899. Production from the Michel Colliery during 1969 was obtained from five underground mines and six open pits. The coal-preparation plant and the by-product plant are on the colliery site at Michel. The mines are on both sides of the Michel Valley and at various elevations, having been opened mainly from the outcrop of the seams. Mechanized room-and-pillar methods of mining were used in the underground mines, with the entire output being obtained by Joy continuous miners and Lee Norse miners. Pillar extraction in the thick Balmer seam was small, and an extraction of only 15 to 20 per cent of the total seam thickness was obtained in the areas worked. The underground equipment was operated mainly by electricity and was of the flame-proof type approved for use in coal mines. Underground tranportation of coal was by shuttle cars and fast-moving belt conveyors, which conveyed the coal to the surface. The method of mining was trackless, with supplies and materials being transported on rubber-tired battery-operated vehicles. Two diesel-operated Hunslet M.T. 60 vehicles were recently purchased for materials transport in the mines.

In an endeavour to obtain a much higher percentage extraction of the thick Balmer seam, Kaiser Resources Ltd. decided to use a hydraulic method of coal-mining. During the year the Balmer Hydraulic test mine was developed and is scheduled to be in production by April, 1970.

During 1969 at Michel Colliery and on the exploration programme, a total of 1,850 pounds of Monobel and 100 pounds of CXL-ite explosive was used. In addition, 3,120 electric detonators were used with no report of any misfired shot. A total of 3,020 tons of limestone rock dust was used in the underground roadways of all the mines in order to minimize the explosion hazard. Regular monthly dust samples were taken at all the mines in accordance with the requirements of the *Coal Mines Regulation Act*. These samples were analysed and found to be above the minimum requirements needed for incombustible content.

Monthly examinations of workings were made at the mines by the miners' inspection committees, and regular safety meetings were held each month at the mine office. Reports kept at the mine in compliance with the *Coal Mines Regulation Act* were checked periodically and found to be in order.

Manpower on books at Michel Colliery at the end of the year amounted to 446—236 being employed on the surface and 210 being employed underground.

Underground Mining Operations

Balmer North Mine.—William Davey, overman. This mine in the No. 10 seam is on the north side of the Michel Valley and is entered by two rock tunnels, each 1,150 feet long. The mine portals are at an elevation of 3,850 feet and are approximately 1 mile west of the coal-preparation plant. The seam is 40 to 60 feet thick, dips at an angle of 15 to 20 degrees to the southwest, and is overlain by a fairly strong shale roof. The coal is mined by continuous miners, loaded onto shuttle cars, and transported from the mine by a trunk belt conveying system.

A daily production of approximately 1,400 tons of saleable coal was made during 1969. Three continuous-miner machines produced coal in different sections of the mine, each section being ventilated with a separate split of ventilation. The greater portion of the mine's production was obtained from driving rooms immediately beneath the hangingwall of the seam and along the direction of the line of strike. A lesser portion of the mine's production was obtained from a method of partial pillar extraction. In this method, connections driven to the rise between the main entries on the strike were additionally excavated by doubling the width and depth. A ventilation quantity of approximately 150,000 cubic feet per minute was constantly required in this section of the mine to ventilate the worked-out areas adequately until such time as the panel was sealed off.

At the beginning of May, 1969, a new Joy 400-horsepower mine fan was installed at the Balmer North mine. This exhaust fan was installed at the top of the 16-foot diameter shaft and had the immediate effect of doubling the quantity of air ventilating the mine. The fan operates on a 6-inch water-gauge and provides 360,000 to 380,000 cubic feet per minute to the mine ventilation. The main return air in the upcast shaft has contained in the order of 0.5 per cent methane since the installation of the new mine fan. Prior to the installation of the new fan, the methane content of the main return air was approximately 0.9 per cent.

Ventilation at the working faces was provided by a combination of 30-horsepower electrically driven auxiliary fans and ducting, together with line brattice. By this means, 30,000 to 40,000 cubic feet per minute of air was made available at the face of the workings. During the year, the company equipped each continuous-miner machine with a constant-reading methanometer. These instruments are pre-set to give the machine operator adequate warning when the methane content at the working face reaches a level of 1 per cent.

To obtain reasonable working temperatures underground in this mine during winter conditions, two " Flamemaster " mine air-heating units were installed. The units operating on natural gas were installed at the portals of the two intake rock tunnels. The use of the rock-dust sprinkling-machines throughout the workings of the Balmer North mine continued to improve the efficiency of rock-dust application. The use of sprinkle dusting-machines represented a major improvement in the means of combatting the hazards associated with fine coal dust in coal mines. The use of water barriers for the arresting of explosions was extended throughout the mine during the year. Each of the separate entries to the workings in the three sections of the mine was equipped with water barriers.

Improvements remain to be made in dust suppression at the working-places in the mine. Results of airborne-dust surveys, conducted by the Environmental Control Branch of the Department of Mines and Petroleum Resources in 1969, more than confirmed this need. The company purchased a sampling instrument which will enable them to conduct airborne-dust surveys themselves. The availability of water at pressure to each of the continuous-miner machines was greatly increased and modifications to the cutting heads of the Joy continuous miners are planned in order to improve dust suppression.

Three 150-kva., 6,600–550-volt transformers were installed to supply the Joy exhaust fan driven by a 400-horsepower motor. This fan is provided with an emergency standby diesel. The diesel starts immediately on loss of electric power and picks up the fan load by means of an automatic clutch. When electric power is restored, the diesel idles for 5 minutes and then shuts down automatically.

At the No. 2 tunnel portal a mine air-heating system and a 100-horsepower fan were installed.

The Balmer North mine was regularly inspected throughout the year, and in general conditions were found to be fairly satisfactory.

Balmer No. 1 (South) Mine.—Arnold Webster, overman. This mine operating in the Balmer seam has been in production since 1960. It is on the south side of the Michel Valley, the mine portals being 1 mile west of the coal-preparation plant. The operation has been adequately described in previous Annual Reports. One continuous-miner machine was engaged in coal production from January to June of 1969, during which period the daily saleable tonnage of coal produced was approximately 400 tons.

On June 19, 1969, a month before the mine was scheduled to be closed, a tragic accident occurred in the Balmer No. 1 mine, accompanied by the loss of three lives. An inrush of water took place, accompanied by extensive roof caving. A special investigation was conducted and reported on by the Department of Mines and Petroleum Resources. The mine was closed for production immediately after this incident.

Balmer Hydraulic Mine.—R. E. Sieling, superintendent. This mine operating in the No. 10 seam was opened in 1969 for the purpose of testing the application of hydraulic methods of mining to this particular seam. The mine is approximately 1 mile west of the coal-preparation plant at Michel, and on the south side of the valley. Two main entries were driven to the rise in the coal seam, one at the hangingwall and one at the footwall of the outcrop of the seam on the mountainside. The coal seam averages 50 feet in thickness and is overlain with a hard shale roof. During the year the mine was developed by a continuous miner which was used to drive the main entries, airways, and the first two sub-levels. The mine produced solely from development work an average daily production of 300 tons saleable coal during 1969.

Ventilation to the mine was provided by a 100-horsepower electrically driven axivane fan delivering approximately 100,000 cubic feet of air per minute at a 3-inch water-gauge. To provide adequate ventilation at the working face, a 30-horsepower auxiliary fan was used with flexible ducting. During the course of inspection, general conditions were found to be satisfactory and at no time could methane gas be detected by either flame safety lamp or methanometer.

The size of the power-line to this mine was increased to 3/0 A.W.G. and a 100-horsepower Jeffrey fan was installed on the surface.

The development of the main entries and sub-levels was completed by November, 1969, and the company has since been engaged upon surface and underground plant assembly. Pumping equipment capable of providing 1,060 gallons of water per minute at pressures varying between 1,800 to 2,300 pounds per square inch was being installed. The mine is scheduled to commence production, using the hydraulic method, early in 1970.

The intended underground method of work will be to drive sub-levels at a uniform rising gradient of 10 degrees in the footwall horizon of the thick seam, from the side of the main entry to an agreed boundary-line. The 35-foot strip of coal immediately adjacent to and on the rise side of the sub-level will then be excavated as a retreating pillar. The coal will be cut off the solid by a high-pressure jet of water directed at the face by a hydraulic monitor, and will then be transported by the same water in semi-circular steel troughs, outby along the mine roadways and to the dewatering plant on the mine surface. This method of coal-mining has many advantages over other mechanized methods at present being used, and progress made by the company will be observed with close interest and care.

" C " North Mine.—Henry Eberts, overman. This mine was opened in November, 1966, and produced coal continuously from that date until it was closed in September, 1969. The workings of the mine and the geology of the coal meas-

ures have been adequately described in previous reports. From the beginning of the year until September, 1969, the daily production averaged 400 tons of saleable coal. The room-and-pillar method of work was used, the coal being mined by one Joy continuous-miner machine. The extension to the " C " North mine, with workings in the lower " C " seam, was taken off production at the same time.

Approximately three-quarters of a mile of No. 3/0 A.W.G. 6,900-volt power-line was built from upper " C " mine to lower " C " mine and a 100-horsepower fan was installed on the surface.

General conditions were found to be satisfactory during the course of inspections, with no indications of methane being observed or reported from the " C " North mine.

" D " North Mine.—Henry Eberts, overman. This mine was opened in October, 1969, to develop an area of workings in the " D " seam, on the north side of the Michel Valley. The portals at an elevation of 5,300 feet are accessible from a private road leading from the coal-preparation plant. The mine entries were made on the seam outcrop with a continuous-miner machine. The coal seam is about 8 feet thick, dips at an angle of 12 degrees to the southwest, and is at an average depth of 90 feet below the surface. The mine was ventilated by a 100-horsepower electrically driven fan, capable of producing 80,000 cubic feet of air per minute at a 1.2-inch water-gauge.

A 6,900-volt No. 3/0 A.W.G. power-line 900 feet long was built from " C " North mine to " D " North mine.

The mine averaged a daily production of 200 tons of saleable coal from October to the end of the year. Rooms were driven by a continuous-miner machine, but no pillar extraction took place. Coal was transported by shuttle car and belt conveyor to the loading point outside the mine. The immediate roof beds of the coal seams, being of a friable nature, were supported throughout the mine by close-set timber posts.

General conditions were found to be satisfactory during the course of inspections. No indications of methane were detected or reported from the mine and damp conditions prevailed through most of the workings.

OPEN PIT MINING OPERATIONS

J. Anderson, superintendent. During 1969, Kaiser Resources Ltd. produced almost 60 per cent of the total output of coal from a number of open pits. These are at fairly high elevations on both sides of the Michel Valley and have workings in three separate coal seams. A brief description of each open pit follows:—

No. 3 Seam Open Pit.—This open-pit operation commenced in the spring of 1967, and has since continuously produced coal from the No. 3 seam. The open pit is at an elevation of 5,000 feet on the Natal Ridge, approximately 2½ miles north and west of Michel. The total thickness of the coal seam is about 45 feet, but contains two thick bands of dirt with a combined thickness of 15 feet. The pit wall is benched, and slopes at an angle of 55 degrees to the horizontal. Coal produced at the open pit was hauled 4 miles by truck over a company road to the coal-preparation plant at Michel.

No. 7 Seam Open Pit.—This open pit is on the Natal Ridge at an elevation of 4,800 feet, approximately 2 miles southwest of Michel. The seam is 31 feet thick and contains a 6-foot dirt band about 8 feet above the footwall. It dips southwesterly 15 to 20 degrees. Operations were spasmodic in 1969 and coal production was low.

Plate XIA.—Kaiser Resources Ltd.'s Harmer No. 1 open pit with several 200-ton capacity Lectra Haul dump trucks. (Courtesy Kaiser Resources Ltd.)

Plate XIB.—View inside the mile-long coal-conveyor tunnel through which coal is moved through the mountain to the preparation plant. (Courtesy Kaiser Resources Ltd.)

No. 10 Seam, 4 Open Pit.—This open-pit operation commenced in October, 1967, and finished in September, 1969. It was on the Sparwood Ridge at an elevation of 5,000 feet and a distance of 2½ miles southwest of Michel. All operations at the open pit were carried out by Emil Anderson Ltd., under contract to Kaiser Resources Ltd. The coal seam is 40 to 50 feet thick and dips easterly at about 30 degrees. The face of the open pit was benched, and the pit wall was sloped at an inclination of 57 degrees to the horizontal.

No. 10 Seam, 4A Open Pit.—This open pit is at an elevation of 5,000 feet on the Harmer Ridge and has access to the coal-preparation plant by 5 miles of private road. The coal seam is about 40 feet thick and is overlain by about 70 feet of strata. Operations during 1969 were spasmodic and were carried out by Emil Anderson Ltd. under contract to Kaiser Resources Ltd.

No. 10 Seam, 6 Open Pit.—This open pit was brought into operation in the spring of 1968, for the mining of an area of No. 10 seam at McGillivray, off the south side of the Michel Valley. Because of the high ash content in the coal, operations in 1969 were spasmodic. Access to the mine from the preparation plant is by 4 miles of public road and 3 miles of private road.

No. 10 Seam, 7 Open Pit.—This open-pit operation commenced in January, 1969, to work coal outcropping on the east side of the Elk Valley. The open pit is at an elevation of 4,900 feet and is approximately 3 miles southeast of Sparwood. All the operations at this open pit are carried out by Emil Anderson Ltd. under contract to Kaiser Resources Ltd.

Harmer Ridge, Open Pit.—P. G. Urso, open-pit manager; J. Korski, open-pit superintendent; T. Stokey, plant superintendent; H. Henderson, maintenance superintendent.

Throughout 1969, as soon as the facilities were made available to them, the open-pit operations staff commenced on various pre-production operations—6.9 million cubic yards of overburden was drilled, 6.5 million cubic yards was blasted, and 6 million cubic yards was transported from the pit to the dump. Most of this work was performed in the Harmer No. 1 and Dry Creek pit areas.

In addition to extensive road construction, a raw-coal stockpile base was made adjacent to the breaker station. In the Harmer No. 1 pit, the 6460 and 6520 benches were stripped to uncover the coal and stripping commenced on the 6340 and 6400 benches. In the Dry Creek pit, stripping was finished on the 5380 and 5440 east side benches. In the No. 8 pit area, the surface was cleared and work commenced on the first shovel bench. A continuously operating programme employed 360 men on the pre-production development.

Power-lines were run throughout the pit to supply three 25-cubic-yard shovels, one 16-cubic-yard shovel, and four 12-inch rotary drills. The shovel load is 1,600 horsepower. An air compressor driven by a 50-horsepower motor was also installed. A maintenance complex which adds 1,300 horsepower to the total was also built.

PROSPECTING AND EXPLORATION

J. B. Murphy, geologist. During 1969, the company continued its exploration programme under the direction of J. B. Murphy, exploration geologist. In the vicinity of Michel, emphasis was placed upon proving-up additional reserves of high-quality coking-coal. General access roads were constructed to more remote portions of the property within a 10-mile radius of the Michel area. Reconnaissance mapping was conducted in the vicinity of Tent Mountain, Sparwood Ridge, and Mount Hosmer.

Plate XIIA.—Coal conveyor running down the slope from the tunnel toward the preparation plant in the middle distance. (Courtesy Kaiser Resources Ltd.)

Plate XIIB.—Kaiser Resources Ltd.'s coal-preparation plant at Natal. (Courtesy Kaiser Resources Ltd.)

During the year, 18 miles of access road, 5 miles of trenching, the driving of 15 adits with a total length including crosscuts of 3,809 feet, and 45,000 feet of drilling were completed. On the company's Elk River coal lands, a geological reconnaissance of the entire area was carried out. Access roads were built to the Greenhills area east of the Elk River, and to the Burnt Hill Ridge east of the Fording River. During the year 12 miles of access road and 3 miles of trenching were completed.

Kaiser Construction Division.—Considerable progress was made during 1969 in preparing for the new surface-mining operation. L. Cherene and E. Ryan, project engineers for Kaiser, supervised and co-ordinated the activities of all the contractors on the site.

During the year the mile-long conveyor tunnel was completed and lined, and the conveyor equipment between the coal-breaking station and the coal-preparation plant was installed. Two 1,000-horsepower motors located outside the upper portal will control the conveyor. Their duty will be braking rather than driving when the conveyor is loaded. By the end of the year the coal-preparation plant and unit train-loading facilities were almost completed. It is expected that the plant will be ready to receive coal from the new open pit by February, 1970. On the Harmer Ridge, the maintenance shop, warehouse, changehouse, and mine office were all constructed and commissioned during the year. The first electrical power substation was erected and brought into use. A second substation should be completed by February, 1970. By the end of the year most of the construction of the haulage roads necessary to serve the operation had been completed. The following list of machinery and equipment was assembled during 1969, and made available for use by the operations staff:—

Three Model 2800 P and H 25-cubic-yard shovels.
One Model 181M Marion 8-cubic-yard shovel.
One Model 183M Marion 10-cubic-yard shovel.
Nine M200 unit rig 200-ton trucks (rock).
Three M100 unit rig 100-ton trucks (rock).
Three M100 unit rig 100-ton trucks (coal).
Four Model 60R Bucyrus Erie rotary blast-hole drills, 12- to 14-inch diameter.
One Model 45R Bucyrus Erie rotary blast-hole drill, 9-inch diameter.
One Model 988 Caterpillar front-end loader, 6½-yard bucket.
Nine D9G Caterpillar tractors.
Two Model 633 Caterpillar scrapers, 30 cubic yards.
Two Model 824 Caterpillar rubber-tired bulldozers.
Three Model 16C Caterpillar road graders.
One Model D600 KW Dart front-end loaders, 12 cubic yards (rock).

In addition, the following equipment has arrived and is being erected:—

One Page dragline, 54 cubic yards.
One Model 2800 P and H 25-cubic-yard shovel.
One Model 2100 P and H 15-cubic-yard shovel.
One M200 unit rig 200-ton truck.

Old Coal-preparation Plant.—G. Lancaster, superintendent. This plant is on the colliery site and is located near the entrance to the old rock tunnels on the south side of the Michel Colliery. This plant was built in 1936, and a description of the mode of operation has been given in past Annual Reports.

A pump driven by a 50-horsepower 550-volt motor was installed in the powerhouse.

New Coal-preparation Plant.—A new plant for coal processing was built and the installation of machinery was nearly completed by the end of the year. In this plant there will be the following equipment:—

Equipment	Horsepower
Air compressors	70
Conveyors	710
Hoists	80
Coal washer	652
Coal screens	2,573
Pumps	6,200
Miscellaneous	4,650
Total	14,935

By-product Plant.—I. Dufour, superintendent. This plant is situated adjacent to the coal-preparation plant. It employed 58 men in 1969. Present operations are confined to the horizontal-fired Curran-Knowles ovens, a detailed description of which has been given in past Annual Reports. The plant produced a total of 161,303 tons of coke and 15,877 tons of breeze in 1969.

COLEMAN COLLIERIES LIMITED

By R. W. Lewis

(49° 114° N.W.) M. Bianchini, foreman. This coal-mining company has been operating an open pit on Tent Mountain, and has produced coal for the past 17 years. Most of the operations have been carried out from and on the Alberta side of the interprovincial boundary, but coal has also been produced from the British Columbia side.

There were no activities on the No. 4 open pit and no coal was produced during 1969.

CROWS NEST INDUSTRIES LIMITED

By R. W. Lewis

(49° 114° N.W.) W. R. Prentice, vice-president; J. J. Crabb, exploration geologist.

During 1969, exploration work was carried out in three areas, Crown Mountain, Line Creek Ridge, and Horseshoe Ridge. The field crew continuously employed on exploration in 1969 consisted of a geologist, two surveyors, one field supervisor, two firebosses, and four miners. A substantial drilling programme was also conducted; this work was done by a drilling contractor employed and supervised by Crows Nest Industries Limited. On the coal-licence areas on Crown Mountain, 7.4 miles of access road was constructed, 5,500 feet of 4⅞-inch-diameter drilling was completed. A substantial amount of trenching and tracing of coal seams was conducted along the outcrop.

In the Line Creek Ridge area, the exploration programme begun in 1968 was continued throughout 1969. A total of 1,800 feet of adit entries were driven for the purpose of bulk sampling, and 20,000 feet of 4⅞-inch-diameter exploratory drilling, together with trenching, tracing seam outcrops, and test-pit sinking, was completed.

In the Horseshoe Ridge area, a total of 4 miles of access road was constructed by bulldozer, and a number of trenches were cut.

SCURRY-RAINBOW OIL LIMITED

By R. W. Lewis

(50° 114° S.W.) P. Abt, executive vice-president; N. C. Croome, vice-president and manager; D. M. Lane, geologist.

This company holds 35 contiguous coal licences, comprising approximately 17,000 acres (27 square miles) in the Elk Valley area. The south end of this property is some 40 miles north of Sparwood Junction on the Canadian Pacific Railroad. During the period June to October, 1969, an exploration programme was conducted by Scurry-Rainbow Oil Limited to obtain additional data, particularly pertaining to coal quality, on the company's coal properties on the coal measures on the west side of Elk River. This programme involved building access roads, preparing diamond-drill sites, moving drill equipment, 9,646 feet of HQ wireline coring in 16 holes, 1,089 feet of tunnelling and crosscutting in seven short prospect adits, and seven crosscuts driven on seven seams intersected in an old 630-foot adit.

Bulk samples (1 ton) from 13 seams are currently being analysed by Cyclone Engineering and Sales, Edmonton, under the direction of Dr. T. Visman of the Western Regional Laboratory, Fuels and Research Branch of the Department of Energy, Mines and Resources.

Scurry-Rainbow Oil Limited, by an option agreement dated October 15, 1969, granted to Morrison-Knudsen Company Inc. an option to acquire an undivided one-half interest in Scurry-Rainbow's Elk River coal holdings. Morrison-Knudsen Company Inc. exercised this option on December 15, 1969, and assigned this option to Emkay Canada Natural Resources Ltd.

Plans have been made to form an operating company under the name of Emkay-Scurry Limited.

FORDING COAL LIMITED

By R. W. Lewis

(50° 114° N.W.) R. M. Porter, president; J. Donald, superintendent; A. C. Taplin, geologist.

This company holds 68 coal licences in the Fording Valley area. Access to the property is by 36 miles of road north from Sparwood along the lower Elk River valley and the Fording River valley. The company has secured markets in Japan for large tonnages of metallurgical coking-coals, and production at the rate of 3 million long tons per year is scheduled to begin in about two years' time. From May, 1969, to the end of the year, the company was engaged in site preparation, road-access improvement, and coal-exploration work. At the end of the year a total labour force of 125 was employed on the property. Bunkhouse accommodation was prepared for considerably more workmen, in readiness for early commencement of construction work.

Coal-exploration work was conducted on the Upper Clode Creek area, Eagle Mountain, Greenhills area, and on the lower west slope of Mount Turnbull. Five drilling rigs were employed, and a total footage of about 27,000 feet was completed. Adits and raises were driven in a number of coal seams on the property, and bulk samples were taken for analysis. A considerable amount of seam-tracing along the outcrop was done by two bulldozers. During September and October a helicopter was used for regional mapping, for establishing survey triangulation control stations, and for the transport of survey crews.

COMINCO LTD. (ELK RIVER)

By A. R. C. James

(50° 114° S.W.) The company holds Coal Licences Nos. 539 to 553, inclusive, on the west side of the Elk River. They are separate from the Fording River holdings of Fording Coal Limited, which is a subsidiary of Cominco Ltd. Access is by road up Elk River valley. Geological mapping at a scale of 1 inch equals one-half mile was carried out by M. R. Murrell and J. Bellamy.

PACIFIC COAL LIMITED

By A. R. C. James

(49° 114° S.W.) The company holds 36 coal licences in the Morrissey and Flathead areas. Access is by gravel road from Highway No. 3 at Morrissey. Six men were employed for two to three months under the supervision of Y. Ogura investigating coal-seam outcrops on Flathead Ridge. Twenty trenches were bulldozed totalling 2 miles and some mapping was done. Active work was done on this property from 1964 to 1967, and a description of previous work may be found in the Annual Reports for those years.

PICKLANDS MATHER & COMPANY

By R. W. Lewis

(49° 114° N.W., S.W.) F. D. Effinger, manager. This company was employed on two separate coal-exploration programmes, one on Cabin Creek in the Flathead area and the other on Coal Mountain near the former town of Corbin. Between June 15 and August 11, 1969, the company constructed a number of access roads to drilling-sites at the two locations. Geological field-mapping was performed, and a total of 4,300 feet of drilling was completed. All sizeable coal seams intercepted by the drilling were sampled and analysed.

NICOLA-PRINCETON INSPECTION DISTRICT

IMPERIAL METALS AND POWER LTD.

By A. R. C. James

(50° 120° S.W.) James Ball, president. The company holds Crown-grant rights on Lot 166, 1½ miles south of Merritt. Access is by road from Merritt. Four holes were diamond-drilled totalling 2,701 feet in the vicinity of Coldwater Hill. It is reported that the results of the drilling were encouraging.

The Merritt coalfield is in a sedimentary series of Tertiary age occupying a depression in the surrounding Triassic Nicola Group rocks. The sedimentary basin extends for about 7 miles in a northeasterly direction with a maximum width of 3 miles. Except for a few exposures, bedrock within the area is concealed by thick overburden, most of which is glacial debris. Most outcrops occur on the slopes to the west of Coldwater River, 1 to 2 miles south to southwest of Merritt, and this is where the present exploration work has been done. The thickness of coal measures varies from 450 feet at Coldwater Hill to 750 feet at Coal Gully. There are from five to eight seams in these sections, but only a few of these are of mineable thickness. The rank of the coals is usually high volatile bituminous A, B, or C. Most of the former coal mines were in the Coldwater-Coal Gully area. Total production from 1906 to 1960 was about 2,700,000 tons.

[Reference: *Minister of Mines, B.C.*, Ann. Rept., 1946, pp. 250–279.]

NORTHERN INSPECTION DISTRICT

BULKLEY VALLEY COLLIERIES LTD.

By David Smith and A. R. C. James

(54° 127° N.E.) The company holds six Crown-granted lots and 21 coal licences on Goathorn Creek, 7 miles southwest of Telkwa. Access is by good gravel road from Telkwa.

The mine was operated by Forestburg Collieries Limited, who employed six men stripping and mining coal from the open pit. The coal was broken by a ripper. Production was 9,475 tons. Exploration work included bulldozer trenching and 4,840 feet of rotary drilling was carried out on Lots 401, 391, 389, 230, and 221. It is reported that this work resulted in exposure of coal seams on Lots 401 and 230.

The property of the Bulkley Valley Collieries Ltd. is in the Telkwa coalfield. This comprises a relatively small area west of the Telkwa, which is underlain by sediments which are believed to be part of the Bowser Group of Late Jurassic and Early Cretaceous age. These sediments are to a considerable extent overlain by glacial material so that bedrock is not well exposed. In places the sediments have been found to contain coal seams of good quality and mineable thickness, and these have been mined where it has been found economic. Production in the coalfield started in 1918 and up to the end of 1969, 474,913 tons had been mined. This came from seven small underground mines and two small open-pit operations. About 90 per cent of the total production has been from the property held by Bulkley Valley Collieries Ltd.

[References: *Minister of Mines, B.C.*, Ann. Repts., 1951, pp. 291–297; 1967, pp. 458, 459.]

PINE CREEK COAL LTD.

By A. R. C. James

(54° 127° N.E.) The company holds approximately 56 coal licences lying north of the Telkwa River and west of the Bulkley River. Part of the property is under option to Canex Aerial Exploration Ltd. Access is by road, about 5 miles from Smithers.

Twenty-three 3½-inch holes totalling 4,734 feet were drilled and five men were employed for a month under the supervision of F. G. Hewett.

These leases are in the Telkwa coal basin to the west of the holdings of Bulkley Valley Collieries Ltd. Bedrock is exposed along the Telkwa River, but elsewhere there are few exposures to be seen.

[References: *Minister of Mines, B.C.*, Ann. Repts., 1951, pp. 291–297; 1967, p. 458.]

NORTHERN COAL MINES LIMITED

By David Smith

(53° 121° N.W.) The company holds Coal Licence No. 148 on lower Bowron River, 4 miles south of Purden Lake and about 43 miles east of Prince George. Access is by road east from Highway No. 97, via St. Mary Lake and Willow River.

A small crew was employed intermittently on maintenance, with A. J. Garraway as manager.

A description of this property and its geological setting was given in the Annual Report for 1967. In recent years the company has endeavoured to prove up reserves of coal of coking quality, and in a report to the company, J. M. Black calculated reserves currently of 25 million tons of indicated and probable coal, although it is not known with certainty how much of this is of good coking quality. A thousand feet north of the southeast corner of Lot 9592 an inclined entry has been driven westerly at minus 12 degrees, cutting the upper coal seam at 100 feet depth and being driven down dip on the seam. The incline and slope has been driven 890 feet, and 185 feet of level heading has been driven in the seam.

[Reference: *Minister of Mines, B.C.*, Ann. Rept., 1967, pp. 459, 460.]

PINE PASS COAL CO. LTD. (NOMAN CREEK)

By A. D. Tisbury, David Smith, and A. R. C. James

(55° 121° N.W.) The company holds 18 coal licences in the Pine Pass area, covering the Willow Creek and Hasler Creek areas as well as Noman Creek. Brameda Resources Ltd. explored the ground under option agreement with Pine Pass Coal Co. Ltd.

Up to 16 men were employed for four to six months in stripping and testing. Twenty-three holes totalling 23,000 feet were diamond drilled. Geological mapping and reconnaissance was done under the direction of Harold Jones, resident engineer. Four miles of drill access road was constructed.

Coal seams are known to occur on Noman Creek for more than a mile northwesterly from the John Hart highway. The seams occur in the Gething Formation. The structure is a northwesterly trending syncline with steeply dipping limbs, bounded on the east by the Noman fault. East of the Noman fault is the east limb of another syncline which is cut off by a second fault, called the Eastern fault. The most important coal seam, designated Seam 76, has an average thickness of 16 feet. Seam 78, which is 100 feet stratigraphically above Seam 76, is also of mineable thickness over a considerable area.

[References: *B.C. Dept. of Mines,* Bull. No. 36, 1955, pp. 15–17; Bull. No. 52, 1967, p. 87; *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 467.]

BRAMEDA RESOURCES LTD. (SUKUNKA RIVER PROJECT)

By A. R. C. James

(55° 121° S.W.) Up to the end of 1969 the Sukunka River lay entirely within an area in which coal rights were reserved. Access is by 36 miles of road south of Chetwynd. The first 15 miles of this road is a public highway, and the remainder is a logging-road.

A trailer camp was established in the Sukunka Valley below the coal showings. Access roads to drillsites were constructed. Approximately eight NQ holes totalling 5,981 feet were diamond drilled, and drilling was continuing at the year-end. A crew of up to 25 men was employed under the supervision of H. Jones and W. McAdam.

In 1969 a local resident drew the attention of L. Belliveau to the presence of coal seams on the east side of the Sukunka River between Skeeter Creek to the north and Chamberlain Creek to the south. Mr. Belliveau subsequently interested Brameda Resources Ltd. in the area, and this company decided to carry out exploration in spite of the fact that any coal resources would, for the time being, remain under reserve.

The coal area is in the eastern inner foothills of the Rocky Mountains, 36 miles by road south of Chetwynd. The topography consists of gently rounded hills incised at intervals by creeks and rivers. Elevations usually do not exceed 5,000 feet. The highest mountain in the area is Bullmoose Mountain, 6,627 feet, which dominates the skyline to the east of the coal area. Timber cover appears generally rather light, with considerable deciduous trees such as birch and poplar. Good timber stands are reported to the south where Canadian Forest Products Ltd. is logging, this timber being hauled to a mill at Chetwynd.

The Sukunka River contains a fair volume of water and flows in a broad glacial valley, in places 2 miles wide. In the lower 15 miles, before it enters the Pine River, a number of ranches are being developed on the flats and land clearing is still in progress. The road up the Sukunka Valley for the first 15 miles is a public highway maintained by the Department of Highways; beyond is a logging-road maintained by Canadian Forest Products Ltd.

The geology of the area is described in Geological Survey of Canada Paper 61-10, Dawson Creek Map-area, by D. F. Stott. Stott's mapping terminates 4 miles west of Bullmoose Mountain and thus just includes the coal area.

As the foothills are approached, it is evident that there is more deformation and faulting of the sedimentary series than beneath the plains further east. A series of southwesterly dipping, low-angle thrust faults have a northwesterly trend and are in echelon at 1 to 10 mile intervals. One such fault passes through Bullmoose Mountain, and another one occurs 4 miles southwest. Between these two faults various Lower Cretaceous formations form what would appear to be a very gentle syncline free of major faults. Along the lower slopes of the Sukunka Valley and foothills, the Gething Formation outcrops over about 16 square miles. According to Stott, about 300 feet stratigraphical thickness of the Gething is exposed at the falls on the Sukunka River, consisting of a cyclic succession of coal, carbonaceous shales, fine-grained sandstones, and conglomerate.

At an elevation of over 4,000 feet on the flank of Bullmoose Mountain, the Gething is overlain by the Moosebar Formation, consisting of marine shales, which in turn is overlain (at 4,700 to 5,000 feet elevation) by the lower member of the Commotion Formation.

The outcrops of several coal seams of economic thickness occur in the Gething Formation between Skeeter Creek and Chamberlain Creek, east of the Sukunka River, on the flank of Bullmoose Mountain. Interest is being concentrated on one seam which varies from 4 feet 6 inches to 11 feet thick (average 8 to 9 feet thick) and appears to extend over a wide area. This seam outcrops at about 3,400 to 3,800 feet elevation. There is another potentially mineable coal seam below the " main " seam. This is of somewhat variable thickness due to the presence of rock bands, but is reported to contain rarely less than 4 feet of clean coal. There is also reported to be some thinner seams above the " main " seam. Recent drilling appears to have established the continuity of the main seam over at least 1 square mile, with drill-indicated reserves of about 9 million tons. Such samples of the coal as have been taken indicate that it is a medium volatile bituminous coal of high-grade coking quality. Analyses to date indicate an ash content of about 6 per cent, sulphur about 0.5 per cent, inherent moisture under 1 per cent, with high calorific value and good swelling indices.

[References: *Geol. Surv., Canada,* Paper 61-10, Dawson Creek Map-area; *Geol. Surv., Canada,* Map 19-1961.]

TABLE 12.—METAL PRODUCTION, 1969

Property or Mine	Location of Mine	See Page	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Contents					
						Gold	Silver	Copper	Lead	Zinc	Cadmium
Alberni Mining Division				Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Brynnor mine	Kennedy Lake		Brynnor Mines Ltd., Kennedy Lake Division	41,823	Iron concentrates shipped from stockpile						
FL	Zeballos	215	Zeballos Iron Mines Ltd.	47,488	Iron concentrates, 83,814 tons						
Lynx mine	Buttle Lake	218	Western Mines Ltd.	383,931	Copper concentrates, 23,371 tons; zinc concentrates, 49,220 tons	13,947	498,006	12,816,483	6,394,143	57,046,582	252,398
Atlin Mining Division											
Nil											
Cariboo Mining Division											
Boss Mountain mine	Big Timothy Mountain	178	Brynnor Mines Ltd., Boss Mountain Division	547,500	Molybdenite concentrates, 2,065 tons containing 2,346,883 lb. of molybdenum						
Clinton Mining Division											
Nil											
Fort Steele Mining Division											
Sullivan mine	Kimberley	345	Cominco Ltd.	2,157,522	Lead concentrates, 140,959 tons; zinc concentrates, 169,300 tons; tin concentrates, 252 tons containing 288,427 lb. of tin; iron sinter, 182,237 tons	172	3,150,706	555,800	200,866,000	177,553,200	470,975
Golden Mining Division											
Nil											
Greenwood Mining Division											
Highland-Bell mine	Beaverdell	301	Mastodon-Highland Bell Mines Ltd.	34,105	Lead concentrates, 1,925 tons; zinc concentrates, 578 tons; jig concentrates, 201 tons	582	510,149		645,146	691,824	1,997
Midway	Midway	304	D. Moore, Midway	21	Crude ore	4	303		343	343	
Phoenix mine	Phoenix	305	The Granby Mining Co. Ltd., Phoenix Copper Division	759,299	Copper concentrates, 18,604 tons	15,730	94,725	9,479,110			
Skomac	Greenwood		J. S. and J. A. Kleman, Greenwood	19	Crude ore	3	264		1,707	493	

				Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Kamloops Mining Division											
Bethlehem mine	Highland Valley	245	Bethlehem Copper Corporation Ltd.	5,386,691	Copper concentrates, 57,688 tons	2,074	158,534	42,902,589			
Liard Mining Division											
Nil											
Lillooet Mining Division											
Bralorne mine	Bralorne	187	Bralorne Can-Fer Resources Ltd., Bralorne Division	94,396	Bullion	46,896	8,275				
Nanaimo Mining Division											
Independent	Benson Lake	207	Cominco Ltd	43,522	Copper concentrates, 4,356 tons	1,627	10,887	1,890,000			
Iron Mike	Sayward		R. I. Bennett	33,000	Iron concentrates shipped from stockpile						
Old Sport mine	Benson Lake	207	Coast Copper Co. Ltd.	237,490	Copper concentrates, 8,321 tons; iron concentrates, 77,386 tons	10,524	29,238	4,980,000			
Texada mine	Texada Island	213	Texada Mines Ltd.	1,330,029	Iron concentrates, 616,301 tons; copper concentrates, 8,665 tons	1,254	52,220	3,637,899			
Nelson Mining Division											
Howard	Salmo	316	J. Stoochnoff, J. Hutton, Salmo; G. Windsor, Spokane	39	Crude ore	4	39		1,466	1,466	
Jersey mine	Salmo, Iron Mountain	319	Canadian Exploration Ltd.	517,648	Lead concentrates, 5,552 tons; zinc concentrates, 22,129 tons		28,241		9,023,605	25,687,496	207,086
Leadville	Creston	322	F. J. Brady, Creston	3	Crude ore		16		884	247	
New Arlington	Salmo, Erie Creek	318	G. D. Fox, Trail	3,339	Crude ore	398	2,219		38,000	46,000	
Puerto Rico	Nelson		D. Pearce, Nelson	6	Mill clean-up	29	91		304	113	
Reeves MacDonald mine	Nelway	320	Reeves MacDonald Mines Ltd.	201,215	Lead concentrates, 3,990 tons; zinc concentrates, 16,172 tons		28,626	12,680	4,644,134	17,456,975	106,388
Silver Dollar	Salmo, Erie Creek	317	D. H. Norcross, Nelson	565	Crude ore	80	2,542		6,634	7,441	
New Westminster Mining Division											
Pride of Emory mine	Hope	196	Giant Mascot Mines Ltd.	337,056	Nickel-copper concentrates, 16,760 tons; nickel content, 3,385,375 lb.			1,830,300			
Nicola Mining Division											
Craigmont Mine	Merritt	271	Craigmont Mines Ltd.	1,810,855	Copper concentrates, 71,710 tons			37,629,772			
Omineca Mining Division											
Cronin mine	Smithers	100	Kindrat Mines Ltd.	300	Lead concentrates, 24 tons; zinc concentrates, 28 tons	2	2,485		30,570	34,346	341
Endako mine	Endako	153	Endako Mines Ltd.	9,628,000*	Molybdenite concentrates, 10,416 tons; molybdenum trioxide, 4,193 tons. Total content, 16,600,000 lb. of molybdenum.						

---

* Production is estimated.

TABLE 12.—METAL PRODUCTION, 1969—*Continued*

Property or Mine	Location of Mine	See Page	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Contents					
						Gold	Silver	Copper	Lead	Zinc	Cadmium
				Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Omineca Mining Division—Continued											
Granisle mine	Babine Lake	114	Granisle Copper Ltd.	2,329,857	Copper concentrates, 36,055 tons	14,339	138,219	24,886,200			
Pinchi Lake mine	Pinchi Lake	156	Cominco Ltd.	(1)	Mercury						
Silver Standard mine	Hazelton	98	Northwestern Midland Development Co. Ltd.	884	Lead concentrates, 100 tons; zinc concentrates, 12 tons	44	27,863		60,424	53,031	172
Osoyoos Mining Division											
Dusty Mac	Okanagan Falls	294	Dusty Mac Mines Ltd.	107	Crude ore	72	1,581		426	533	
Golconda	Olalla	297	Trent Resources Ltd.	17	Crude ore		79	8,889	279		
Horn Silver mine	Keremeos	297	Utica Mines Ltd.	74,915	Silver concentrates, 2,697 tons; jib concentrates, 451 tons	1,458	554,979		110,400	135,465	
Revelstoke Mining Division											
Nil											
Similkameen Mining Division											
Silvertip	Princeton	290	H. J. and L. L. Adams, H. J. Krase, Merritt	35	Crude ore	1	562		9,614	4,207	
Skeena Mining Division											
B.C. Molybdenum mine	Alice Arm	69	British Columbia Molybdenum Ltd.	2,356,514	Molybdenite concentrates, 4,774 tons containing 5,723,025 lb. of molybdenum						
Tasu mine	Tasu Harbour	73	Wesfrob Mines Ltd.	2,120,646	Iron concentrates, 1,040,293 tons; copper concentrates, 40,122 tons	6,000	194,336	16,917,900			
Slocan Mining Division											
Alamo	Silverton		W. Pengelly and W. Fulkeo, Silverton	200	Lead concentrates, 6 tons; zinc concentrates, 11 tons	1	1,160		7,669	11,912	84
Arlington	Springer Creek	324	Arlington Silver Mines Ltd.	1,917	Crude ore		26,805		89,589		
Bluebell mine	Riondel	337	Cominco Ltd.	230,956	Lead concentrates, 14,134 tons; zinc concentrates, 24,155 tons	69	304,927	288,000	20,649,400	24,157,000	111,788
Colorado	Slocan	325	Hyperion Silver Mines Ltd.	23	Crude ore		212		135	181	
Dublin Queen	New Denver	332	Iskut Silver Mines Ltd.	12	Crude ore		611		7,545	3,834	
Enterprise	Slocan	325	Enterprise Silver Mines Ltd.	61	Crude ore		373		2,536	6,891	
Freddy	Silverton	326	J. C. Hansen and H. B. Lyon, New Denver	52	Crude ore	4	2,470		919	470	

				Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Homestake	Slocan	325	Raymond Gold and Silver Ltd., and C. Thickett, Slocan	52	Crude ore	42	4,417		906	1,076	
Little Tim	Slocan	324	K. G. Marshall and R. B. Sarage, Nakusp; Shawn Mines Ltd.	112	Crude ore		6,388		7,168	3,461	
Millie Mack	Slocan	323	Richwood Silver Mines Ltd.	24	Crude ore	5	222		997	651	
Ottawa mine	Springer Creek	324	Pamicon Developments Ltd.	11	Silver concentrates, 10 tons; crude ore, 115 tons		31,349		624		
Pontiac	Ainsworth		H. A. Lane and V. Matheson, Nelson	11	Crude ore	5	194		4,508	2,656	
Scranton	Kaslo	333	Silver Star Mines Ltd.	35	Crude ore	49	1,014		47,055	5,845	
Silver Bell	Silverton	327	J. O. H. Nesbitt and O. A. Lindstein, Silverton	200	Lead concentrates, 17 tons, zinc concentrates, 24 tons		2,284		29,772	24,294	146
Silver Chalice	Kaslo		E. B. Beale, Kaslo	500	Lead concentrates, 6 tons; zinc concentrates, 24 tons		917		6,377	24,845	171
Silver Hoard	Ainsworth	333	G. McLellan, Ainsworth	200	Crude ore		2,813		7,980	15,561	
Skyline	Ainsworth	334	W. E. Lane, Ainsworth	400	Crude ore		1,527				
Standard	Silverton	327	Panoil Canadian Mineral Associates	665	Lead concentrates, 229 tons; zinc concentrates, 412 tons	18	67,729		293,673	441,631	3,723
Victor	Sandon	338	E. H. Petersen and E. Perepolkin, lessees	131	Crude ore	24	16,701		98,443	74,115	401
Washington	Retallack-Three Forks	330	Red Deer Valley Coal Co.	1,920	Lead concentrates, 2 tons; zinc concentrates, 426 tons		10,552		4,086	438,209	3,495
Westmont	Enterprise Creek	326	Eastmont Silver Mines Ltd.	10	Crude ore		786		858	1,163	
Trail Creek Mining Division											
Coxey mine	Rossland	314	Red Mountain Mines Ltd.	201,542	Molybdenite concentrates, 702 tons containing 842,093 lb. of molybdenum						
Vancouver Mining Division											
Britannia mine	Howe Sound	193	Anaconda Britannia Mines Ltd.	605,273	Copper concentrates, 24,362 tons; zinc concentrates, 653 tons	1,510	53,122	13,964,301		674,966	3,400
Vernon Mining Division											
Chaput	Lumby	298	F.K. Explorations Ltd.	1,367	Crude ore, 777 tons; lead and iron concentrates, 59 tons	27	29,620		97,233	79,300	
DCK	Vernon	298	King Graybarr Mines Ltd.	59	Crude ore	1	171		2,536	979	
Skookum	Vernon		T. J. McQuillan, Vancouver	143	Crude ore		1,089				
Victoria Mining Division											
Nil											

---

[1] Details confidential.

INDEX

A

Page
A, 93N/3E 107
A, 102I/9E, 16E 201
A, 92B/5E 225
A, 50° 120° N.E., geochemical report—*see also* C, PIN, ART 357
A FRACTION, 103I/9W 81
AAA, 102I/9E 201
  geological and geochemical reports 365
Aabro Mining & Oils Ltd., MOTHER LODE, GREYHOUND, 82E/2E 307
Aalde, A. 199
Aarn Exploration & Development Co. Ltd., ACE, 92I/8W 275
AB, 92C/16W 222
AB, 92F/9W 213
  geochemical report 355
A & B Gravel Sales Limited, sand and gravel 402
Abbotsford Gravel Sales Ltd., sand and gravel 402
ABERDEEN, 92I/7W 269
Ablett, Albert A. 253, 263, 361
Abt, P. 420
A. C. A. Howe International Limited, LITTLE JOE, GYPSY, 103P/13W 58
Acaplomo Mining & Development Co. Ltd., MAKELSTIN, 50° 120° S.W., geophysical and geochemical report 359
ACB, 92I/7W 242
ACE, 92I/8W 275
ACE, 92I/9W 236
ACE, 92L/12E 203
ACE, 114P/9W 28
Acheron Mines Ltd., TI, MOM, BUD, 92L/12W 201
  geological and geochemical report 365
ACR, 93L/1E, 1W 150
ACT, 50° 121° S.E., geophysical and geochemical reports and line-cutting 360
Action Exploration Ltd., SOO, 82E/6W 296
  geophysical report 352
ACTIVE, 82M/12W 229
ADA, 93C/4E 74
ADAIR, 104P/3E 43
  geophysical and geochemical report 374
Adam River Mining Ltd., CAM, DOC, 92L/1E, 8E 210
Adams, H. J. 428
Adams, L. L. 428
Adams Lake area 234
Adamson, J. S. 342, 343
Adanac Mining and Exploration Ltd., ADERA, 104N/11W 29
ADD, 92I/10E 237
ADD, 55° 126° N.W., geophysical report 371
ADERA, 104N/11W 29
Adera Mining Limited, DEN 92I/11E 251
ADMIRAL DEWEY, 92I/9W 236
Adolphson, G. 319
ADR, 82K/15W 342
AFTON, 92I/10E 237
AG FRACTION, 93L/2W, 2E 126
AG MAMBA, 104P/6W 42
Ager, C. 83, 84
A.G.N. Syndicate—
  DON, 49° 120° S.W., geochemical report 353
  LEE, 49° 120° S.W., geochemical report 354
Agricola Mines Ltd., NOVA, BUCK, TICK, 50° 119° S.E., geochemical report 357
Ahbau Creek area 161
Ainsworth, A. H. 208
Ainsworth area 333
AIRD, 102I/9E, 16E 200
  geological and geochemical report 365

Page
AJ, 92I/10W 266
AJ, 92L/6W 207
AJ, 93L/11E 86
AJAX, 82E/1E 311
AJAX, 92F/9W 214
AJAX, 92L/6W 207
Ajax Mercury Mines Limited, RAMBLER, 82E/6E 301
AJS, 92I/16W, 92P/1W 234
AJS, 93L/15E 100
AL, 92H/16W 280
AL, 92I/6E 259
AL, 92I/7E, 7W 270
  geophysical and geochemical report 360
AL, 93B/9W 173
AL, 104P/5E 42
AL FRACTION, 92I/7W 264
ALADDIN, 92F/9W 214
ALAMEADA, 92I/7E 270
  geophysical report 357
ALAMO—*see* Table 12 428
ALAMO, 92I/6E, 7W 242
Alaska Highway area 50
ALBANY, 92J/2W 192
Alberni Mining Division, metals 215
Albeta Mines Ltd., ALPHA, BETA, HILLCREST, 92C/9E 223
ALDEBARAN, 103P/6W 64
ALEX, 93N/2E 107
  geophysical and geochemical reports 371
ALFIE, 92H/6W 199
ALFY, 82E/13W, 82I/4W 300
ALICE, 82E/2E 304
ALICE, 82N/4W 339
ALICE, 103P/6W 64
Alice Arm area 60
ALICE LAKE, 92L/6W 207
Alice Lake area 207
Alice Lake Mines Limited, CLANCY, 92L/6W 207
  geophysical report 363
ALKI, 82G/11W 348
Allan, W. 292
Allard Concrete Construction Co., sand and gravel 401
Allen, A. 386
Allen, J. M. 266
Allen, R. B. 47
ALLEN, 92K/3W 211
  geochemical report 363
ALLIE, 93L/12W 79
Allison Lake area 278
ALLRIGHT, 92K/3W 211
ALMA, 82E/5W 297
ALMA N, 82F/6W 316
Almaza Mining Co. Ltd., DIANE, 92H/5E 198
ALPHA, 92C/9E 223
ALPHA, 92K/3W 212
ALPHA, 93M/6W 99
ALPHA, 93M/8W 112
  geophysical and geochemical report 371
ALPHA, 104N/12E 28
ALPINE, 103I/9E 82
Alrae Engineering Ltd., HB, AJ (HUNTER), 93L/11E 86
ALTA, 92I/7W 264
  geophysical report 360
Alta Lake area 191
Altair Mining Corporation Ltd., BON, BID, 50° 127° N.W., geochemical report 363
Alvija Mines Ltd., ALVIJA, 103I/9E 82
ALVIN, 82E/2E 304

Page
Alwin Mining Co. Ltd.—
  EZZ, 92I/11E ... 252
    geochemical report ... 361
  DAB, HJ, RM, JT, 92I/10W ... 250
    geochemical report ... 360
  OK (ALWIN), 92I/6E ... 262
AM, 92H/3E ... 199
AM (Highmont), 92I/6E, 7W ... 244
AM (Minex), 92I/7W ... 244
  geological, geophysical, and geochemical report 357
AM, 103I/9W ... 76
AM FRACTION, 92I/7W ... 244
AMALG, 92H/15E ... 277
  geophysical report ... 352
AMANDY, 82E/2E ... 304
  geological report ... 350
Amax Exploration, Inc.—
  AXE, BUD, BOL, 92H/10E ... 279
  BD, VB, WIN, 92P/6E ... 184
    geological, geophysical, and geochemical report ... 367
  CS, EN, 93A/7E ... 177
    geochemical report ... 367
  FAB, 93E/11E ... 98
    geological and geochemical report ... 368
  HEATH, 93N/6E ... 106
    geological and geochemical report ... 371
  KEN, 93K/3E ... 152
    geological and geochemical report ... 369
  KID, 93K/7W ... 120
    geological and geochemical report ... 369
  ROB (NADIRA), 92C/15E ... 221
AMAZON, 92L/6W ... 207
AMAZON, 92O/3W ... 181
AMERICAN CITIZEN, 93L/14E ... 85
American Smelting and Refining Company—
  ADA, 93C/4E ... 74
  CHU, 93F/7E ... 155
  DOT, ROD, TON, RUBY, 93L/7E ... 122
  HESQUIAT, SATCHIE, BROWN JUG, 92E/8W, 9W ... 216
  JAY, 92N/13E ... 189
  NAT, 93F/4W ... 154
  OX, 93E/11E ... 93
  PEACH, PIT, TIM, 92P/14W ... 183
  RH, 92O/3W ... 181
    geochemical report ... 367
  TET, 93F/5E ... 154
AN, 93L/10E ... 120
ANACONDA, 103O/8E ... 59
Anaconda American Brass Limited—
  CL, OX, 92P/16W ... 230
  DB, 92P/14W ... 183
  DOT, 92H/10E ... 280
  EMPRESS, 92H/9E ... 281
    geochemical reports and line-cutting ... 353
  HIGHPOINT, 92I/6E ... 254
  HO, 93A/6W ... 177
  KF, 93C/3W ... 162
  MM, 93C/6W ... 74
    geophysical report ... 368
  OWL, NIT, 93F/15W ... 154
  PC, 92P/9W ... 231
    geophysical report ... 366
  RO, SO, geophysical report ... 367
  SHEBA, 92L/7W ... 264
  SL, 92P/16W ... 231
  SODA, 92P/14W ... 183
  TEL, 93C/5E ... 74
    geophysical and geochemical reports ... 368
  TUL, 92H/7E ... 282
Anaconda Britannia Mines Ltd., BRITANNIA MINE, 92G/11E ... 193
  production, *see* Table 12 ... 429
Anaconda Company (Canada) Ltd., The, TIGER, 103P/11W, 12E ... 60
Anchor Mines Ltd., T, 92H/7E ... 287
  geophysical report ... 354
Anderson, J. ... 411, 414
Anderson, J. F. ... 193
Anderson, R. E. ... 119

Page
Andex Mines Ltd., ANDEX, 82F/14E ... 333
ANDY, 92F/2E ... 220
ANDY, 104P/6W ... 41
ANG, 57° 131° N.W., geophysical report ... 373
ANGUS, 93L/2W, 2E ... 126
Angus Creek, placer ... 376
ANN, 92J/15W ... 186
ANN (MINEX), 92I/7W ... 244
ANN (SHEBA), 92I/7W ... 264
ANN (TROJAN), 92I/7W ... 244
Annacis Island, sand and gravel ... 401
ANNE, 82L/6E ... 298
  geophysical report ... 357
ANNE, 82M/13W ... 230
ANNE, 92C/16E ... 223
  geochemical report ... 349
ANNEX, 82F/3W ... 320
Annis Industries Ltd., limestone ... 398
Annmar Mining Ltd., LOBO, BONNIE BRAE, JOHN, 82L/11W ... 240
ANOMALY, 92C/9E ... 223
Antoine Silver Mines Ltd., ANTOINE, 82K/3E ... 331
Antonelli Trucking Ltd., sand and gravel ... 403
Anyox area ... 59
APEX, 92I/6E ... 262
APEX, 51° 122° S.W., geological and geochemical report ... 367
Apex Exploration & Mining Co. Ltd., PAYCHEX, PAPEX, KOPR, JILL, 49° 119° S.W., geophysical report ... 352
Appelgate, L. ... 216
Apps, G. E. ... 223
APRIL, 93A/12E ... 175
Aquarius Investments Ltd., PETE, RAM, RANJO, 51° 119° S.W., geophysical and geochemical reports ... 366
ARANY, 92H/5W ... 195
Arcadia Explorations Ltd., CD, CU, 103P/5W ... 59
Arctic Gold and Silver Mines Limited, FOX, 104N/11W ... 36
  geological and geocheimcal report ... 374
Ardo Mines Ltd.—
  POLLEY, RED ROCK, 93A/12E ... 175
  T, DA, DOR, 54° 128° S.E., geochemical report 370
ARLINGTON, 82F/3W ... 318
Arlington Silver Mines Ltd.—
  ARLINGTON, 82F/14W ... 324
    production, *see* Table 12 ... 428
  ED, 92L/11E ... 209
    geophysical and geochemical report ... 364
  HIGH, 92I/10W ... 254
Armour & Saunders Limited, sand and gravel ... 404
ART, 92I/9W ... 237
ART, 92L/11W ... 204
ART, 54° 124° S.W., 53° 124° N.W., geophysical report ... 369
asbestos—
  CASSIAR MINE, 104P/5W ... 379
  MOON CREEK, 92J/16E ... 380
ASCOT, 93L/15E ... 100
  geophysical and geochemical reports ... 369
ASH, 92H/7W ... 282
ASH, 104G/7W ... 46
Ashland Oil & Refining Co., BLUEJAY, BEE, 49° 120° N.W., geophysical report ... 352
Aspen Grove area ... 276
Aspen Grove Mines Ltd.—
  HH, MIX, 3WAY, 92H/15E ... 277
    geophysical report ... 353
  LIZ B, TAG, 49° 116° S.W., geophysical report 349
Aston Resources Limited, OVP, MK, 93E/11W ... 98
  geological, geophysical, and geochemical report 368
ASTRA, 92J/3E ... 191
AT, 50° 127° N.W., geochemical reports ... 363
ATAN, 104P/3E ... 43
  geophysical and geochemical report ... 374
ATKOM, 103I/8E ... 78
ATLANTA, 82K/16W ... 341
Atlantis Mines Ltd., QUARTZ SILVER, 103I/10W 72
Atlas Explorations Limited, BEAR, 82E/13W, 82L/4W ... 300

PAGE
Atlin area, metals 28
Atlin Mining Division—
  metals 28
  placer 375
ATNA, 93M/14W 101
Atna Range area 100
ATTYCELLEY, 94E/2E 103
  geochemical report 372
ATU, 50° 127° N.E., geochemical report 365
AUG, 50° 120° S.W., geophysical report 357
AUGUST, 104P/3E 43
  geophysical and geochemical report 374
AURUM MINE, 93H/4E 162
Aurus Mining Ltd.—
  ILSE, 92H/8W 289
    geophysical and geochemical report 353
  SOB, 92H/8W 289
    geophysical and geochemical report 354

PAGE
Austen, J. W. 178
AV, 92C/15E, 16W 221
AVALLIN, 92C/15E, 16W 221
AW, 94D/15E 104
AX, 92I/11E 267
AX, 92J/7E 189
AXE, 82E/4E 298
  geophysical report 352
AXE, 92H/7E 287
  geophysical report 352
AXE (Kalco Valley Mines Ltd.), 92H/7E 288
AXE, Whipsaw Creek, 92H/7E 289
AXE, 92H/10E 279
AXE, 92J/2W 192
AXEL, 93B/9W 174
AYE, 92I/6E 245
AZURE, 92J/2W 192

B

B, 92I/6E 248
  geochemical report 361
B, 93G/3W 161
B FRACTION, 103I/9W 81
BA, 93L/7W 122
BAB, 93L/9W 118
BABBLING BROOK, 92O/3W 181
BABE, 93M/7E 113
  geophysical report 371
BABINE, 93L/9E, 16E 117
  geological and geochemical reports 370
Babine Lake area 110
Babine Range area 98
Bacon, W. R. 107, 156, 160, 368, 369, 371
Bacon and Crowhurst Ltd., SILVERADO, PROSPERITY, PORTER IDAHO, 103P/13W 58
BADGE, 93L/16W 115
BAL, 93N/3E 107
  line-cutting 371
Baldwin, A. B. 189
Ball, James 421
BALM, 104N/12E, 12W 37
BALMER HYDRAULIC MINE, MICHEL COLLIERY, 49° 114° N.W. 413
BALMER NORTH MINE, 49° 114° N.W. 411
BALMER No. 1 (SOUTH) MINE, MICHEL COLLIERY, 49° 114° N.W. 413
BALMORAL, 92C/14E, 14W 220
BALSAM, 94C/3E 105
Balsley, G. E. 410
BAN, 92H/16W 280
BAN, 92I/6E 257
BANNER, 92O/4E, 5E 180
BAR, 82F/3W 321
BARB, 93N/2E 107
  geophysical and geochemical report 371
BARB, 93B/8E 175
Barclay, R. J. 222, 224
Barclay Sound area 220
BAREFOOT, 82F/10E 337
barite—
  BAROID OF CANADA, 82K/16W 383
  BRISCO BARITE, 82K/16W 383
  PARSON BARITE, 82N/2E 382
  TOBY CREEK BARITE, 82K/8W 383
  YORNOC, 82K/8E 344, 383
Barkley Valley Mines Ltd., CALLAGHAN, TARN, 92J/3E 191
Baroid of Canada, Ltd. 383
BARON, 92K/3W 212
BARR, 93L/7W 122
Barriere area 232
Barriere Explorations Ltd., BEX, 82M/5E 233
  line-cutting 366
Bartle Explorations Ltd., LUNA, 104P/6W 42
BAT, 92H/15E 276
BAT, 92N/10E 180
Baverstock, R. T. 193
BAY, *see* ISLAND COPPER, 92L/11W 204

BAY CREEK, 92F/4W, 5W 217
Bayland Mines Ltd.—
  JESS, HOLLY, 94D/1W 108
    geological and geochemical report 372
  KO, 93L/1W 150
Bayley, E. (Jr.) 183
BB, 92K/3W 211
  geochemical report 363
BB, 92O/5E 180
BC, 92I/11E 245
BD, 92P/6E 184
  geological, geophysical, and geochemical report 367
BD, 103I/9W 76
BEA, 92H/5E, 6W 197
Beale, E. E. 429
Beamin, George 401
BEAR, 82E/9W 310
  geological report 350
BEAR, 82E/13W, 82L/4W 300
BEAR, 92F/5E, 12E 219
  geological report 355
BEAR, 92K/5E 211
BEARSDEN, 82M/12W 228
BEAVER, 104N/12W 36
BEAVER DAM, 92K/3W 212
Beaverdell area 301
BEE, 82N/4W 339
BEE, 49° 120° N.W., geophysical report 352
BEE, 49° 121° S.E., geochemical report 355
BEE, 49° 121° S.E., geophysical report 355
Begon, B. 388
Belcarra Exploration Ltd., RAINBOW, 92I/9W 236
BELL, 93L/2E 139
Bell, Matt 121
Bell Molybdenum Mines Limited, MOLY, 103P/6W 69
Bellamy, J. 421
BELLE, 50° 127° N.W., line-cutting 365
BELLE AIRE, 82F/10W 334
Bellex Mines Ltd., GA, 92I/7W 252
Belliveau, L. 423, 424
BEN, 92I/7W 264
BEN, 93B/9E 174
BENARD, 92H/7E 288
Bencrest Mines Ltd., CRIS, JAE, LF, BO, 92I/6E 250
Bennett, R. I. 427
Benson River area 207
Bentley, R. M. 325
BERG, 50° 127° N.W., 50° 128° N.E., geological and geochemical report 363
Berkosha, J. 38
Berto, S. 401
BET, 92I/7W 256
  geophysical report 359
BETA, 92C/9E 223
BETA, 92K/3W 212
BETA, 92L/12E 203
BETH, 92I/14W 241
BETH, 93M/8W 112
  geophysical and geochemical report 371

PAGE
Bethlehem Copper Corporation Ltd.—
BANNER, 92O/4E, 5E 180
BETHLEHEM MINE, 92I/2W 245, 246
production, *see* Table 12 427
BOYES, 92L/8E 210
geological report 363
CHARLOTTE, ANN, 92J/15W 186
DEN, 92I/11E 251
FG, 93L/9E 118
JOE, MO, HJ, 103I/9W 77
K, 92I/11E, 11W 258
LAKE, 92I/6E 259
MAGGIE MINE, 92I/14W 241
geological report 362
MINT, 92I/2E 274
placer 376
REA, TL, 93E/11E 97
TUNGSTEN QUEEN, 92O/2E, 2W 186
BEV, 82E/5E, 6W 294
BEVELEY, 94C/3E 105
BEX, 82M/5E 233
line-cutting 366
BG, 82E/2E 304
geochemical report 350
BH, 93N/6W, 11W 105
B & H, 92I/9E 235
Bianchini, M. 419
BID, 50° 127° N.W., geochemical report 363
Bidiuk, Nikanor 73, 369
BIG BONANZA, 82G/11W 348
BIG CANYON, 104N/12E 28
BIG CHIEF, 82F/4W 315
BIG ELI, 49° 120° S.E., geophysical and geochemical report 352
BIG MISSOURI, 104B/1E 57
BIG MOOSE, 93L/2W, 2E 126
Big Slide, placer 376
Big Timothy Mountain area 178
BILL, 82L/10W 298
BILL, 92I/10W 266
BILL, 92I/10W 250
BILL, 92O/3W 181
BILL, 50° 127° N.W., geochemical report 363
BILL, 50° 127° N.W., N.E., geochemical report 364
BIN, 92I/6E 248
geological, geophysical, and geochemical reports and line-cutting 360, 361
BIN (Cominco option), 92I/6E 246
geological and geophysical reports and line-cutting 361
BIN (Noranda option) 248
geochemical report 361
BIN (Phelps Dodge option), 92I/6E 249
Birch Creek, placer 375
Birch Island area 229
BIRD, 104G/7W 46
BIRMOLY, 82M/5W 232
geophysical report 366
BIT, 92K/3W 212
BJ, 82L/6W 239
BJ, 92O/5E 180
BJ, 93A/12E 176
BJ, 93B/8E 175
geophysical report 368
BJB, 92O/3E 182
BL, 93L/5E 91
Black, J. C. 328
Black, J. M. 377, 423
BLACK BEAR, 93L/2E 139
BLACK BEAR, 103P/6W 64
BLACK BEAUTY, 92I/9W 236
BLACK BIRD, 92H/7E 288
Black Cricket Mines Limited, MADISON, 82F/14E 330
BLACK DIAMOND, 82E/6E 301
Black Dome Mountain, placer 376
Black Giant Mines Ltd., TI, 49° 118° S.W., geochemical report 351
BLACK JACK, 82E/2E 308

PAGE
Black Mastodon Minerals Ltd., CLOVER LEAF, 92H/5E 198
BLACK MOUNTAIN, 93L/9W, 10E 120
Blackham's Construction Ltd., sand and gravel 402
Blackjay Exploration Ltd., NIK, 92H/5W 195
Blayney, W. N. 320
Blondeau, Lorenzo 330
Blower, K. 73
BLU, 92I/11E 256
BLUE, 92F/6E 219
BLUE, 93A/12E 176
BLUE BELLE, 94C/11E 109
Blue Gulch Explorations Ltd., PINE, REG, DY, 92H/10E 278
geochemical report 354
BLUE HAWK, 82E/6E 299
BLUE JACK, 92J/3E 191
BLUE JAY, 92P/9W 231
BLUE JAY, 49° 120° N.W., geophysical report 352
BLUE OX, 92L/6E 208
Blue Star Mines Limited, ED, 92I/11E 251
BLUEBELL MINE, 82F/15W 337
production, *see* Table 12 428
BLUEBERRY, 92I/7W 270
geophysical and geochemical reports 358
BLUEBIRD, 82F/4W 315
BLUEBIRD, 82F/14E 329
BLUENOSE, 82L/14E 239
geophysical report 357
BO, 92I/6E 250
BO, 92J/7E, 7W 188
BO, 104I/2W, 2E 48
BOATSWAIN FRACTION, 82F/14W 327
BOB, 92I/7E, 7W 270
BOB, 92I/7W 253
BOB, 92J/15W, 92O/2W 185
BOB, 92L/6E 209
geophysical and geochemical reports 363
BOB, 92L/11E 209
geophysical and geochemical report 364
BOB, 92O/2W 186
Bobbie Burns Creek, placer 377
BOBCAT, 51° 119° S.W., geological, geophysical, and geochemical reports 366
BOBO, 94D/1W 102
BOL, 92H/10E 279
Bomarc Mining Co. Ltd., MEL, 92I/6E 261
geochemical report 362
BON, 92I/6E 257
BON, 92L/7E 209
geophysical report 363
BON, 50° 127° N.W., geochemical report 363
BON, 50° 127° N.E., geochemical report 365
BONANZA, 82G/11W 348
BONANZA, 92J/15W, 92O/2W 185
BONANZA, 94K/11W 51
Bonanza Lake area 209
Bonaparte River area 241
BONNET, 49° 115° S.W., geophysical report—*see also* DAISY 349
Bonnet Mines Ltd., DONA, 82E/13W 293
line-cutting 351
BONNIE BRAE, 82L/11W 240
BONUS, 93K/3E 152
geophysical report 369
BOOM, 93D/16W, 93E/1W 161
BOOM, 93N/6W, 11W 105
BOOT, 82E/4E 297
BOOT, 92H/16W 277
line-cutting 354
BOOT, 93L/9W, 10E 120
BOOTJACK, 93A/12E 176
Border Sand & Gravel Ltd., sand and gravel 402
Borin Creek, placer 376
BORNITE, 92C/15E 221
Bosnich, G. D. 196
BOSS MOUNTAIN MINE, 93A/2W 178
production, *see* Table 12 426
BOSUN, 82F/14W 327
Boulder Creek, placer 375

PAGE
Boundary Exploration Limited—
  BRUCE, 82K/7W 335
  IXL, 82E/9W 310
  PRESIDENT, HAUSER, 82K/7W 336
BOUNTY, 92G/10E 194
BOW, 104I/3E 47
Bowbyes Mines Ltd., BOWBYES, 103I/2W 72
Bower Creek area 109
Bowser Rescources Ltd., JOY, BOW, 104I/3E 47
BOX, 104I/5W 45
BOY, 92I/2E, 2W 273
BOY, 92L/5E 206
Boyd, C. 193
BOYES, 92L/8E 210
BP, 82E/1E 311
BRAD, 82M/5W 233
BRAD, 92L/5E 206
Bradley, Leonard 318
Brady, F. J. 322, 427
Bragg, D. K. 202, 364
Bralorne Can-Fer Resources Limited—
  BRALORNE MINE, 92J/10W, 15W 187
    production, *see* Table 12 427
  DOLLY VARDEN, NORTH STAR, TORIC, WOLF, 103P/12E 60
  KYU, 92L/3W 215
Bralorne Pioneer Mines Limited, *see* Bralorne Can-Fer Resources Limited.
Brameda Resources Ltd.—
  JACK, 92I/11E 255
  KRAIN, 92I/10W, 11E 259
  Noman Creek, 55° 121° N.W., coal 423
  Sukunka River, 55° 121° S.W., coal 423
Breaks, W. 402
breeze, by-product plant, Michel Colliery 419
BREN, 52° 122° N.E., geophysical report 368
BRENDA, 52° 122° S.E., geochemical report 368
Brenda Lake area 278, 291
Brenda Mines Ltd., BRENDA MINE, 92H/16E 292
Brendako Mines Ltd., SID, KC, 82E/12W, 13W 293
BRENNAN, 92I/6E 257
Brett, F. 203, 204, 209
Brettland Mines Ltd.—
  ACE, BETA, 92L/12E 203
  BON, 92L/7E 209
    geophysical report 363
  GUB, TAB, 92L/11W, 12E 204
  IRON CAP, DOME, 104P/6W 42
  TUB, 50° 127° N.W., geochemical report 365
BRIAN, 55° 126° N.W., geophysical report 371
Bridge River area 185
Bridge River United Mines Ltd., LUCKY STRIKE, RICKY, BOB, 92J/15W, 92O/2W 185
BRIDGET, 50° 120° S.W., geophysical report 358
BRIGHT STAR, 82L/10W 298
BRIGHT STAR TRIO, 82L/10W 298
Bright Star Trio Mining Ltd., BRIGHT STAR, 82L/10W 298
BRISCO BARITE, 82K/16W 383
BRITANNIA MINE, 92G/11E 193
  production, *see* Table 12 429
British Columbia Lightweight Aggregates Ltd., clay and shale 388
British Columbia Molybdenum Limited, BRITISH COLUMBIA MOLYBDENUM MINE, 103P/6W 69
  production, *see* Table 12 428
BROADVIEW, 82K/11W 341
BROATCH, 49° 120° N.W., geophysical report 353
BROKEN HILL, 82K/8W 343
Bronlund, E. 105
Brooklyn deposit, 82E/2E 305
Broswick, Dave 231
Brown, C. A. 376
Brown, C. E. Gordon 215
Brown, D. H. 87, 151
BROWN JUG, 92E/8W, 9W 216
BRUCE, 82K/7W 335
BRUCE, 92L/8E 210

PAGE
BRUCE, 92I/10E 238
Bryant Mines Limited, FARSIDE, 82K/14E 336
Brycon Explorations Ltd.—
  HERB, 82E/1E 311
    geophysical report 350
  placer 375
Bryck, J. L. 99
Brynnor Mines Limited—
  Boss Mountain Division, BOSS MOUNTAIN MINE, 93A/2W 178
    production, *see* Table 12 426
  Kennedy Lake Division, BRYNNOR MINE, production, *see* Table 12 426
BS, 82E/15W 300
BST, 82L/10W 298
BT, 92O/5E 180
BUB, 104N/11W 36
BUCK, 50° 119° S.E., geochemical report 357
BUCK, 92I/7W 270
  geophysical and geochemical reports 358
Buckland, F. C. 315
BUD, 92H/10E 279
BUD, 92I/7W 253
BUD, 92L/12W 201
  geological and geochemical report 365
BUD, 93B/9W 173
BUD, 93N/6W, 11W 105
BUD, 104G/7W 46
BUENA VISTA, 104B/1E 57
BUG, 114P/9W 28
Bugaboo Creek area—
  metals 342
  placer 377
Bugaboo Creek Uranium, 82K/9W 377
building-stone—
  CATHERINE (CAMBRIA COPPER), 92K/12W 385
  CRAWFORD CREEK DOLOMITE QUARRY, 82F/10W 384
  CRAWFORD CREEK QUARTZITE QUARRIES, 82F/10W 384
  GILLEY QUARRY, 92G/2E 385
  INTERNATIONAL MARBLE & STONE, 82F/7E 383
  OKANAGAN LANDING GRANITE QUARRY, 82L/3W 384
  PITT RIVER QUARRY, 92G/2E 385
  PORCUPINE CREEK, 82F/6E 384
  RAMSHEAD QUARRIES, 82E, 1W 384
  SHEEP CREEK, 82F/3E 384
  S.U.P. 5382 QUARRY, 92C/9E 386
  VALLEY GRANITE QUARRY, 82H/4E 385
BULKLEY, 93M/3W 99
Bulkley Ranges area 77
Bulkley River, placer 375
Bulkley Valley Collieries Ltd. 422
Bull River area 348
BULLER, 82E/2E 309
  geophysical report 350
BULLION, 82M/12W 229
Bullis, A. R. 315
BUNKER HILL, 82E/1W 309
BUNKER HILL, 103P/12E 63
BUNNY FRACTION, 92I/6E 246
  geological and geophysical reports 361
Burdos Mines Ltd., JB, 53° 122° S.E., geophysical and geochemical report 368
BURG, 93B/9E 174
Burg & Johnson Ltd., sand and gravel 403
Burjoski, Peter J. 323
Burkham Mines Ltd., SILMONAC, 82F/14W 328
BURL, 92I/10W 249
  geophysical report 357
Burlington Mines Ltd.—
  BJB, 92O/3E 182
  BURL, 92I/10W 249
    geophysical report 357
  MOLLY B, 92I/3W 242
BURN, 93M/16W 108
Burnex Exploration Ltd., ROB, 82E/7W 302
Burns Lake area 151

PAGE
BURNT BASIN, 82E/1E 311
Burton, F. R. 277, 352
Burton area 323
BUT, 82M/12W 229
BUTCHER BOY, 82E/2E 307
Butler Brothers Supplies Ltd., sand and gravel 404
Butler-Lafarge Ltd., sand and gravel 404
Buttle Lake area 218
Buval Mines Ltd.—
  LV, 93L/7E, 10E 121

PAGE
Buval Mines Ltd.—*Continued*
  MIDNIGHT, CANADIAN CITIZEN, AMERICAN CITIZEN, 93L/14E 85
BV, 93L/14E 85
BVPK, 82E/2E 309
BW, 92I/7W 264
BW, 93N/3E, 6E 106
B.X. Mining Co. Ltd., ANN, 92I/7W 245
by-product plant, Michel Colliery, 49° 114° N.W. 419
BYR, 92I/9W 236

C

C, 92I/9W 237
  geochemical report 357
C, 93F/7E, 8W 155
CAB, 82K/14E 336
CAC, 104P/5W 40
CACHE, 82E/13W 293
  geophysical report 351
CACHE, 82F/14W 324
Cadco Enterprises Ltd., GO, DO, LE, 92I/10W, 11E 253
Cadwallader Creek area 187
CAIN, 92I/7E, 7W 269
Caine, M. S. 368
Cairn Mines Ltd.—
  JO JO, 82K/3E 330
  REX, RONDA, 92H/9E 294
    geophysical report 354
CAL, 92O/2W 186
CAL, 50° 120° S.W., geophysical report 357
CALEDONIA, 92L/3W 215
CALEX, 93K/8E 157
CALIX MINES LTD., ATLANTA, HORSESHOE, MOUNTAIN DAISEY, 82K/16W 341
CALL, 92I/6E 262
CALLAGHAN, 92J/3E 191
Callazon Industries Ltd., limestone 395
Callison, F. 38
CALMAC HOLDINGS LTD., CHAL, 92K/3W 211
  geochemical report 363
Calmark Explorations Ltd., RAND, 82F/6W 319
CAM, 92L/5E 206
CAM, 92L/1E, 8E 210
CAMBRIA, 92J/3E 191
CAMBRIA COPPER, *see* CATHERINE, 92K/12W 385
Cambrian Explorations Ltd., SEEL, AB, 92F/9W 213, 214
  geochemical report 355
Cambridge Mines, Limited—
  OK, DONNY, AL, MAD ARAB, 92I/7E, 7W 270
    geophysical and geochemical report 360
  RH, CAM, ELK, ECHO, 92L/5E 207
Cameron, D. B. 187
Campbell, Colin 106
Campbell, E. D. 305
Campbell, W. 406
CAN, 92H/4E 196
CAN, 93J/1W 160
CANA, 92I/6E 263
Canada Cement Lafarge Ltd.—
  cement 387
  clay and shale 388
  limestone 396, 397
  sand and gravel 401, 403
CANADA DRY, 49° 118° S.W., geophysical report 350
  see also TAM O SHANTER 307
CANADIAN CITIZEN, 93L/14E 85
Canadian Exploration Limited—
  ENDAKO MINE, 93K/3E 153
  INVINCIBLE, 82F/3E 320
  JERSEY MINE, 82F/3E 319
    production, *see* Table 12 427
  SILVER QUEEN, 93L/2W, 2E 126
Canadian Forest Products Ltd. 424
Canadian Johns-Manville Company Limited—
  FALUKA, JOMO, 104N/11W 36
    geological report and line-cutting 374
  HOBO, THOR, 59° 133° N.E., geological, geophysical, and geochemical reports 374
  MOON CREEK ASBESTOS (DEE), 92J/16E 380
    geophysical report 362
  NORSK, 104N/12E, 12W 37
  placer 377
    geophysical and geochemical reports 356
Canadian Pacific Oil and Gas Limited, MT. WASHINGTON COPPER, 92F/11E, 11W, 14W 212, 213
CANADIAN QUEEN, 82F/3W 318
Canadian Refractories Limited (Western Division), clay and shale 387
Canadian Superior Exploration Limited—
  AM, IDE, VM, 92I/7W 244
    geological, geophysical, and geochemical report 357
  BAB, 93L/9E 119
  COB, ICE, JAN, MAD, 93M/14W 101
  DAN, 82E/13W 292
    geochemical report 351
  JKB, 56° 127° S.E., geochemical report 372
  KOFIT, 93M/1W 113
    geological, geophysical, and geochemical reports 371
  LOU, 93L/13E 80
  RED, 93L/9E 119
  WOLF, 93M/1W 114
    geological, geophysical, and geochemical reports 371
CANDY, 92C/16E 223
CANDY, 51° 122° S.W., geological and geochemical report 367
Canex Aerial Exploration Ltd.—
  coal 422
  HD, 93B/9W 174
  OTTER, 82F/3E 320
  POLLYANNA, 93B/9W 173
  SPA, SKAT, JEFF, SKU, 92I/7W 264
  SUNSET, 93B/9W 173
  WIGWAM, 82K/13W 339
Can-Fer Mines Limited, PINE, 94E/8E 109
Cannon Construction Ltd., sand and gravel 401
Cannoo Mines Ltd., CAL, AUG, 50° 120° S.W., geophysical report 357
Canpac Minerals Limited, SIRIUS, 92B/13E 224
CANUCK, 104N/12E 28
Canway Explorations Ltd., SKULL, STAN, MAC, 92P/14E 184
  geochemical report 367
Can West Investments Ltd., WILMAC, 92H/7E 283
  geophysical report 354
Canwex Explorations Ltd.—
  ELN, 92H/9W 280
    geochemical report 353
  NEL, 92I/11E 261
    geological and geochemical report 362
CANYON, 82K/16W, barite 383
CANYON, 92P/8W 232
CAP, 93F/3E, 3W, 6E, 6W 155
CAP, 50° 127° N.W., geochemical report 363
CARIBOO, 82F/8E 347

PAGE
CARIBOO, 82M/11W 228
Cariboo-Bell Copper Mines Limited, CARIBOO-BELL, 93A/12E 176
Cariboo Gold Quartz Mining Company Limited, The, AURUM MINE, 93H/4E 162
Cariboo Heart Range area 102
Cariboo Minelands Ltd., THUNDER, 93G/1W 161
Cariboo Mining Division—
  metals 160
  placer 375
CARLICK, 104P/3E 43
CARMIN, 103I/9E 79
CARMINE, 82../16W, barite 383
Carnaby, Department of Highways, sand and gravel 400
CAROL, 93B/9W 174
Carson, J. 177
Carter, J. 344
Carter, N. C., reports by—
  ALVIJA, 103I/9E 82
  CAVZ, 93M/8W 110
  ESPERANZA, ALICE, 103P/6W 64
  GOLD STAR, 103I/9W 76
  HAYWIRE, 103P/5E 67
  HOPE SILVER, 103I/15W 70
  LA ROSE, SPECULATOR No. 2, BUNKER HILL, 103P/12E 63
  LOU, 93L/13E 80
  ROUNDY CREEK, 103P/6W 68
  TACHI, 93L/9E, 16E 115
  TIGER, 103P/11W, 12E 60
  ZYM, 103I/8E 78
CAS, 49° 120° S.E., geophysical and geochemical report 352
Cascade Molybdenum Mines Ltd., LB (LUCKY BOY), 82K/12E 340
CASH, 93L/7E 121
Cassiar area 40
Cassiar Asbestos Corporation Limited—
  CAC, 104P/5W 40
  CASSIAR MINE, 104P/5W 379
Cassiar Consolidated Mines Ltd., SILVERADO, PROSPERITY, PORTER IDAHO, 103P/13W 58
Cassiar–Stewart road area 40
Castle Rock, placer 376
Castlegar, sand and gravel 404
CAT, 92F/4W, 5W 217
CATHERINE, 92K/12W, building-stone 385
CATHERINE, 92L/6W 207
Catherwood, M. 401
CATHY, 92H/10W 281
  line-cutting 352
CATHY, 83D/12W 228
  geophysical report 367
CAVZ, 93M/8W 110
CD, 103P/5W 59
CEE, 92L/12W, 102I/9E 201
  geophysical report 363
cement 386, 387
Centex Mines Ltd., MAGNET, NOMAD, 58° 132° N.E., geophysical report 374
Central B.C. Exploration Ltd., SAMSON, TIN, CAN, 93J/1W 160
Central Point Resources Ltd., CAP, BILL, TA, AT, 50° 127° N.W., geochemical report 363
Centura Mining Co. Ltd., JAN, 92I/6E 255
Century Manufacturing Co. Ltd., sand and gravel 403
Cerro Mining Company of Canada Limited, AX, ZIP, 92J/7E 189
C. F. Millar Ltd., AFTON, 92I/10E 237
Chakravatti, C. 411
CHAL, 92K/3W 211
  geochemical report 363
CHAL, 49° 120° N.E., geophysical report 354
CHALCO, 92I/11E 249
CHALCO, 92J/10E 187
CHALCO FRACTION, 92I/11E 249
CHALCOCITE, 92H/16W 277
CHAMBERS, 82F/14E 329
Champion, Glen 337

PAGE
Channel-Bar Mining Co. Ltd., sand and gravel 401
Chaplin, R. E. 152
Chapman, M. 120
Chapparal Mines Ltd., RAY, MOS, 104P/5W 40
  geophysical report 374
CHAPPELLE, 94E/6E 103
  geochemical report 373
CHAPUT, 82L/7W 298
  production, *see* Table 12 429
CHARLIE, 82E/13W, 82L/4W 300
CHARLOTTE, 92I/9W 236
CHARLOTTE, 92J/15W 186
Charlotte Lake area 74, 162
CHART, 92C/14E, 14W 220
CHATAWAY, 50° 120° S.W., geological report 357
Chataway Exploration Co. Ltd., SKI, 49° 120° N.W., geophysical report 354
CHATKO, 92I/2E, 2W, 273
CHEAKAMUS BRIDGE, 92G/14E 192
Cheam Marl Products Limited 398
Cheewhat Mining Ltd., DC, RW, IT, ULL, 92C/9W, 10E 222
CHEM, 93N/11E 106
CHERRY, 92I/12W 242
CHERRY CREEK, 92I/10E 238
CHERYL, 92J/15W 186
CHES, 92I/15W 240
  geochemical report 359
CHESS, 93K/3E 152
  geophysical report 369
CHIEF, 82F/4W 315
  line-cutting 350
Chilco Developments Limited, HERB, MOON, RED, BLUE, 92F/6E 219
Chilcotin River area 182
Chilcotin Silver Mines Ltd.—
  FARWELL, 92O/15E 182
    geochemical report 367
  SILVER, KLEIV, 92O/9W 182
    geophysical and geochemical reports 367
Chilliwack Gravel Sales Ltd., sand and gravel 401
Chilliwack Lake area 196
Chilliwack River area 196
Chilliwhack Municipality, sand and gravel 401
Chimdemash Creek area 81
Chisholm, E. O. 238, 279, 354
CHO, 93N/6W, 11W 105
CHRIS, 92J/15W, 92O/2W 185
Christensen, D., 370
Christie, J. S. 268
Christie, K. J. 99
CHRISTINA, 82E/1E 311
Christina Lake area 310
Christoffersen, J. E. 221
CHU, 93F/7E 155
Chukachida Lake area 102
Church, B. N., reports by—
  DIAMOND BELLE, 93L/2E 139
  DOM, 93L/6E 87
  DUSTY MAC, 82E/5E 294
  Owen Lake area, geology of 122
  SG (SAM GOOSLY), 93L/1E, 1W 142
  SILVER QUEEN, 93L/2W, 2E 126
CHURCHILL COPPER, 94K/11W, *see* MAGNUM 50
Churchill Copper Corporation Ltd.—
  JOHN, 94K, 11W 51
    geological and geophysical report 373
  MAGNUM, 94K/11W 50
Chutanli Lake area 155
Chwojka, F. 225
CIN, 93K/9W, 10E 156
CINNABAR, 92O/2E, 2W 186
Cinola Mines Ltd., MIDNIGHT, 82F/4W 315
CIRQUE, 93N/11E 106
Citex Mines Ltd., T, ZZ, 92B/5E 226
CITY OF PARIS, 49° 118° S.W., geophysical report 350
CJ, 103P/6W 68

PAGE
CL, 92I/10W ... 251
  geophysical report ... 358
CL, 92P/16W ... 230
CLANCY, 92L/6W ... 207
  geophysical report ... 363
CLAUDE, 93B/8E ... 175
clay and shale ... 387, 388
CLE, 50° 120° N.E., geochemical report ... 357
  see also C, PIN, ART ... 237
CLEAR CREEK, 92F/4E ... 217
Clearwater area ... 230
Clemiss, Arthur ... 202
CLEO, 93L/9W ... 119
CLEO, 104I/2W ... 48
Cleveland Mining & Smelting Co. Ltd., TAM, KAM, JAC, RAF, 92I/11E ... 265
Climax Molybdenum Corporation of British Columbia Limited, GLACIER GULCH, 93L/14W ... 85
  geochemical report (KEM GROUP) ... 370
Climie, Richard W. ... 386
Clinton Mining Division—
  metals ... 180
  placer ... 376
Clo-oose area ... 222
CLOVER LEAF, 92H/5E ... 198
CM, 92H/15E ... 274
CM, 92I/11W ... 241
CM, 92I/11E ... 264
  geophysical report ... 361
CM, 93M/14W ... 101
CM, 104I/2W, 3E ... 47
  geological report ... 373
CN, 92I/7W ... 242
CN, 92I/10W ... 266
"C" NORTH MINE, MICHEL COLLIERY, 49° 114° N.W. ... 413
CO, 93K/3E ... 153
Coal Harbour-Port Hardy area ... 200
coal mines—
  open pits ... 414
  underground ... 411
coal-preparation plants, MICHEL COLLIERY, 49° 114° N.W.—
  old ... 418
  new ... 419
coal section ... 409–425
Coast Aggregates Ltd., sand and gravel ... 403
Coast Copper Company Limited, OLD SPORT MINE, 92L/6E ... 207
  production, *see* Table 12 ... 427
Coast Mountains area ... 76
Coast Paving Ltd., sand and gravel ... 403
Coast Silver Mines Ltd.—
  JAN, SUMMIT, 93B/9W ... 163, 173
  SILVER QUEEN, 104P/5W ... 41
    geophysical report ... 374
COB, 93M/14W ... 101
COBALT, 104I/7W ... 49
  geophysical report ... 374
Cochrane, D. R. ... 182
Cockayne, R. ... 271
Cody Milling & Smelting Ltd., SLOCAN SOVEREIGN, 82F/14E ... 329
Cohen, H. ... 208, 221, 311
COKE, 92I/7E ... 271
coke, by-product plant, Michel Colliery ... 419
Coin Canyon Mines Ltd.—
  BJ, 82L/6W ... 239
  BUB, 104N/11W ... 36
COLD, 104P/3W ... 43
COLE, 93L/16W ... 110
Coleman Collieries Limited ... 419
COLLEEN, 82E/2E ... 308
COLLEEN, 92K/3W ... 212
Collins, K. G. ... 338
Collison, D. ... 57, 68
COLORADO, 82F/14W ... 325
  production, *see* Table 12 ... 429
Columbia Bitulithic Limited, sand and gravel ... 400

PAGE
Columbia Marble Co., OKANAGAN LANDING GRANITE QUARRY, 82L/3W ... 384
Columbia Metals Corporation, Limited, TRUE FISSURE, 82K/11W ... 341
Columbia Ready-Mix Ltd., sand and gravel ... 404
COMBINATION, 82F/2E ... 305
COMEGO, 92C/16E ... 223
Comet Krain Mining Corp. Ltd.—
  KRAIN, 92I/10W, 11E ... 259
  X-Y, 92I/10W, 7W ... 269
    geochemical report ... 360
Cominco Ltd.—
  ACE, BETA, 92L/12E ... 203
  ALKI, 82G/11W ... 348
  BAR, 82F/3W ... 321
  BIN, 92I/6E ... 246
    geological and geophysical reports and line-cutting ... 361
  BIN, DDH, 92I/6E ... 248
    geological, geophysical, and geochemical reports and line-cutting ... 360, 361
  BLUEBELL MINE, 82F/15W ... 337
    production, *see* Table 12 ... 428
  BO, 104I/2W, 2E ... 48
  CALEX, 93K/8E ... 157
  DUTCHY, 82K/8W ... 344
  ELK RIVER, 50° 114° S.W., coal ... 421
  GIBRALTAR, 93B/9W ... 163
  INDEPENDENT, *see* Table 12 ... 427
  JAF, 82G/6W ... 348
  JT, TH, LD, 92I/6E ... 257
    geological and geophysical reports ... 361, 362
  MOLLY, 82F/16W ... 344
  MIKE, BOB, 92L/6E ... 209
  OLD SPORT MINE, 92L/6E ... 207
    production, *see* Table 12 ... 427
  OLIVER SILICA QUARRY ... 407
  PIL, 57° 126° S.W., geological report ... 372
  PINCHI LAKE MINE, 93K/9W ... 156
    production, *see* Table 12 ... 428
  PRE, 82G/13E ... 345
  RAT, 57° 126° S.W., geological and geochemical report ... 372
  RED, 94D/9W ... 104
    geological and geochemical report ... 372
  SHEL, 93M/14E ... 101
    geological and geochemical report ... 371
  SOM, 57° 127° S.E., geological and geochemical report ... 373
  SULLIVAN MINE, 82F/9E ... 345
    production, *see* Table 12 ... 426
  THEBAN, 57° 126° S.W., geological and geochemical report ... 373
  TIE, SUSAN, 92L/11W ... 208
    line-cutting ... 365
  TOAD, 93K/10E ... 156
  VALLEY, 92I/6E ... 266
  XMAS, 57° 126° S.W., geological and geochemical report ... 373
COMSTOCK, 103O/8E ... 59
CONDOR, 92J/16W ... 188
Condor Mines Ltd., EAGLE, 92J/16W ... 188
CONDUCTOR, 82F/14W ... 329
CONNECTION, 82E/2E ... 309
Connell, P. ... 198
Connolly, J. A. ... 385
Conroy, J. H. ... 344
Consolidated Gem Explorations Ltd.—
  TAM, KAM, JAC, RAF, 92I/11E ... 265
    geophysical report ... 361
  VICTOR, 82L/16W ... 338
    geological and geochemical reports ... 356, 357
Consolidated Mining and Smelting Company of Canada, Limited, The (*see also* Cominco Ltd.), ALVIJA, 103I/9E ... 82
Consolidated New Pacific Limited, MELODY, 82K/8W ... 343
Consolidated Rexspar Minerals and Chemicals Limited, REXSPAR, 82M/12W ... 229
  geophysical and geochemical reports and line-cutting ... 366

Page
Consolidated Skeena Mines Ltd., TOE, BOOT, MALACHITE, 92H/16W 277
  geophysical report and line-cutting 354
Consteel Explorations Ltd., CATHY, 92H/10W 281
  line-cutting 352
Construction Aggregates Ltd., sand and gravel 403
Consul Mines Ltd., BVPK, CV, 82E/2E 309
CONTACT, 92E/8E 216
CONTACT, 104P/5W 40
Contex Silver Mines Ltd., CONTACT, 104P/5W 40
Continental Cinch Mines Ltd.—
  BERG, 50° 127° N.W., 50° 128° N.E., geological and geochemical report 363
  HW, WIT, VIN, PLUG, 50° 127° N.W., geological and geochemical report 364
  JOE, BLU, JO, JACK, 92I/11E 257
Conto, T. 154
Conwest Exploration Company Limited, QC, QCA, 104G/9W, 16W 45
Cook, D. L. 188
Cooke, D. L. 101, 105
COP, 53° 121° S.W., geophysical report 368
COPPER, 82L/6E 298
  geophysical report 357
COPPER No. 2, 82E/9W 310
COPPER BELL, 92K/3W 212
COPPER CANYON, 92I/3E 273
COPPER CHIEF, 82K/12E 340
COPPER CLIFF, 92K/3W 212
COPPER COIN, 49° 118° S.W., geophysical report 350
  see also TAM O SHANTER 307
COPPER CREEK, 92F/4E 217
COPPER CREEK MERCURY PROPERTY, 50° 120° N.W., geological and geochemical report 357
COPPER CROWN, 82K/8W 343
Copper Giant Mining Corporation Ltd., DON, PAM, KEN, PAL, TAP, 50° 127° N.E., geochemical report 364
COPPER GLANCE, 82F/4W 315
COPPER HILL, 92K/3W 212
Copper Hill Mining and Exploration Co. Ltd.—
  BS, PANE, FERN, 82E/15W 300
  KING WILLIAM, ENTERPRISE, TUBAL CAIN, 92I/8W 275
  TOP, LOST, 49° 118° S.W., line-cutting 351
Copper Horn Mining Ltd., FRESNO, FRESNU, 82F/6E 316
COPPER KING, 82E/5W 297
COPPER KING, 82K/8W 343
  geophysical report 356
COPPER MOUNTAIN MINE, 92H/7E 283
Copper Range Exploration Company, Inc.—
  ASH, 92H/7W 282
  IRA, IR, 92H/10W 281
Copper Ridge Mines Ltd., EUREKA, 82F/6W 316
COPPER ROAD, 92K/3W 211
Copperline Mines Ltd., RUTH VERMONT, 82K/15W 342
Coquihalla Lake area 277
Coquitlam Municipality, sand and gravel 400, 401
CORA, 82N/4W 339
Coranex Limited, PEACH, PIT, TIM, 92P/14W 183
  geochemical report 367
CORDOVA, 92L/2W 215
CORDOVA FRACTION, 92L/2W 215
Cormie, A. M. 178
CORNUCOPIA, 82E/2E 308
CORNWALL, 82K/16W 341
CORONATION, 92I/11E 263
Coronet Mines Ltd., ANG, 57° 131° N.W., geophysical report 373
COUGAR, 51° 119° S.W., geological, geophysical, and geochemical reports 366
Courage Exploration Ltd., GOLD, SILVER, 49° 121° N.E., geological and geochemical report 355
Courtenay area 212
Coutts, R. C. 47
COVE, 92L/11W 204
COWBOY, 82K/3E 331
Cowichan Lake area 222
Cowichan Metallic Brick Co., clay and shale 388

Page
Cox, D. 300, 307, 309
COXEY MINE, 82F/4W 314
  production, *see* Table 12 429
Cracroft Islands area 190
Craft, J. (Mrs.) 317
Craig, J. 402
Craigmont Mines Limited—
  CRAIGMONT MINE, 92I/2W 271
    production, *see* Table 12 427
  CW, NW, 92I/1W 274
  GAYLE, BRIDGET, 50° 120° S.W., geophysical report 358
CRATER A1 to H8, 93L/11E 86
  geological report 370
Crawford Creek area 337
CRAWFORD CREEK DOLOMITE QUARRY, 82F/10W 384
CRAWFORD CREEK QUARTZITE QUARRIES, 82F/6E 384
C & R Concrete and Gravel Supplies Ltd., sand and gravel 403
Cream Silver Mines Ltd., CREAM, BEAR, 92F/5E, 12E 219
  geological report 355
Crean, J. Patrick 78
CRESSANT, 82E/2E 309
  geophysical report 350
Cressy, Yvonne L. 360
Creston area 321
  sand and gravel 404
CRIS, 92I/6E 250
Criss Creek Mines Ltd., LES, CHES, DE, 92I/15W 240
  geochemical report 359
Critchlow, F. 177
CROESUS, 82E/2E 308
  geophysical report 350
CROESUS, 103I/9W 77
  line-cutting 370
CRONIN MINE, 93L/15W 100
  production, *see* Table 12 427
Croome, N. C. 420
Crossley, Barbara (Mrs.) 63
CROW, 92F/4E 217
CROWN, 92I/7W 269
  geophysical reports 357, 359
Crownex International Ltd.—
  TAM O SHANTER, 82F/2W 307
    geophysical report (CANADA DRY, LITTLE DALLAS, COPPER COIN) 350
Crown Silver Development Ltd., CANADA DRY, LITTLE DALLAS, COPPER COIN, 49° 118° S.W., geophysical report 350
  see also TAM O SHANTER 307
Crownite Industrial Minerals Ltd., diatomite 389
Crows Bar, placer 376
Crows Nest Industries Limited 419
Croydon Mines Ltd.—
  BC, 92I/11E 245
  BEN, 93B/9E 174
  INDIAN RIVER COPPER, LH, 92G/11E 193
  TN, 92I/6E 266
    geochemical report 362
Cry Lake Minerals Ltd., KIRK, 59° 129° S.E., geophysical report 374
CS, 82M/12W 229
CS, 92I/7W 264
CS, 93A/7E 177
  geochemical report 367
CS, 102I/9E, 16E, 16W 200
  geological and geochemical report 365
C. Thickett and Associates, HOMESTAKE, 82F/14W 325
CU, 82M/5E 233
CU, 92I/7W 264
CU, 93L/7W 122
CU, 93N/6W, 11W 105
CU, 103P/5W 59
CU FRACTION, 93L/2W, 2E 126
Cummings, W. W. 262

PAGE
Cumont Mines Limited, CUMONT PROPERTY, 49° 120° S.W., geophysical reports and line-cutting 352, 353
CURLETT, 82F/3E, 3W 317
CURRIE, 82F/14W 326
Curtis, P. G. 122, 181
CV, 82E/2E 309
PAGE
CW, 92C/9E 223
CW, 92I/1W 274
CY, 49° 120° S.E., geophysical report 353
CYCLONE, 92I/9W 236
Cyclone Engineering and Sales 420
CYE, 82L/14E 239
CYPRUS, 92F/4W, 5W 217

D

"D" NORTH MINE, MICHEL COLLIERY, 49° 114° N.W. 414
DA, 93M/8E 112
DA, 54° 128° S.E., geochemical report 370
DAB, 92I/10W 250
  geochemical report 360
D. A. Chapman and Associates Ltd., ALAMO, SAN JOSE, 92I/6E, 7W 242
  geophysical report 357
DAISY, 82G/5W 346
  geophysical report 349
DAKO, 104P/6W 41
DAKOTA, 82L/6E 298
DALE, 82E/5E, 6W 294
  line-cutting 351
Dalex Mines Ltd.—
  AJAX, BURNT BASIN, 82E/1E 311
  MUD, CHERRY, RICKHILL, SHARON, 92I/12W 242
    geophysical report 362
DAM, 92I/6E 260
DAN, 82E/13W 291
  geochemical report 351
DAN, 94K/11W 50
DAN, 104B/7E 54
Danielson Contractors Ltd., sand and gravel 401
DANNY, 82F/8E 347
DANSEY, 92I/10W 250
  geochemical reports 358
DANSEY-RAYFIELD RIVER, 92P/6E 184
DARDANELLE, 103I/8E 78
Darkhawk Mines Ltd., AYE, 92I/6E 245
DAT, 93K/3E 153
Davey, William 411
David Minerals Ltd., SPARK, JOY, 93M/1W, 8W 112
Davidson, D. A. 98
Davidson, W. 288
DAVIS, 50° 126° S.E., geophysical report 363
Davis, J. 180
Davis-Keays Mining Co. Ltd., DAVIS-KEAYS (BONANZA, EAGLE, LOIS, DK, GER), 94K/11W 51
Davis, Spencer H. 290
Davison, William 354
DAWN, 92I/7W 264
Dawood Mines Limited—
  DOTE, 92H/15E 276
    geochemical report 353
  SPIKE, 82E/13E 299
    geophysical and geochemical report 352
DAY, 82E/15E, 16W 300
  geological and geochemical report 351
DB, 92H/7W 282
DB, 92P/14W 183
DB, 103I/9W 76
DC, 92C/9W, 10E 222
DCK, 82L/6E 298
  geophysical report 357
  production, *see* Table 12 429
D & D, 52° 122° S.E., line-cutting 368
DDH, 92I/6E 248
  geological, geophysical, and geochemical reports and line-cutting 360, 361
DE, 92I/15W 240
  geochemical report 359
Deadwood Lake area 49
DEADWOOD RIDGE, 82E/2E 307
DEB, 92I/6E 254
DEB, 92L/11W, 12E 203
DEBBIE, 104P/1E 49
  geophysical report 374
DEE, 92I/7W 264
DEE, 92J/16E, asbestos 380
  geophysical report 362
DEEP, 49° 120° S.W., geophysical and geochemical report 353
DEEP BAY, 104N/12W 36
DEER, 82L/10W 298
DEER, 93B/9W 174
DEER, 93K/3E 153
DEL, 54° 126° N.E., geophysical and geochemical reports 369
DELAWARE No. 2, 82F/4W 315
Del Cozzo, Mr. 375
Delich, Michael 315
Delkirk Mining Ltd., ESTHER, LEM, 92H/10E, 15E 279
Della Mines Ltd., JOEM, RAIN (DELLA), 104P/6W 41
DELLIE FRACTION, 82F/10W 333
DEL SANTO, 93L/10E 120
DELTA, 92K/3W 212
Delta Municipality, sand and gravel 403
Delta Rock Ltd., sand and gravel 403
DEM, 92L/11W, 12E 205
  geological, geophysical, and geochemical report 363
DEN, 82E/5E, 6W 294
  line-cutting 351
DEN, 92I/6E 259
DEN, 92I/11E 251
DEN, 49° 120° S.W., geophysical and geochemical report 353
Denak Mines Ltd., NU, ELK, 93K/3E 153
DENISE, 82L/6E 298
Denison Mines Limited, REXSPAR, 82M/12W 229
DENNIS, 92L/8E 210
Dennis Holdings Ltd., MOONSHINE, 82K/2W 335
DENVER, 82E/2E 309
  geophysical report 350
Department of Highways, sand and gravel—
  Carnaby 400
  Graham Island 400
  Kent Municipality 401
  Matsqui Municipality 402
  Moresby Island 400
  Terrace highway district 400
DEV, 93L/1E 149
DF, 92I/6E 266
DH, 92I/6E 266
DIA, 92I/11E 267
DIAMOND BELLE, 93L/2E 139
DIANE, 92H/5E 198
DIANE, 93K/13E 109
diatomite—
  FAIREY & COMPANY LIMITED, 93G/2E 389
  CROWNITE INDUSTRIAL MINERALS LTD., DIATOMITE QUARRY, 93B/15E 389
DIBBLE, 82G/11W 348
DICK, 82F/6W, *see* RAND 319
Diewert, A. 397
DIK, 50° 127° N.W., geochemical report 363
Dillingham Corporation of Canada Ltd.—
  placer 377
  geophysical reports 356
Dirom, G. A. 180

PAGE
DIS, 93K/3E 153
Dison Development Ltd., SUNLOCH and GABBRO, 92C/8E 224
DISPATCHER, 92I/9W 236
  geophysical and geochemical report 359
DIXIE, 82E/16W, 82L/1W 323
  line-cutting 356
DK, 94K/11W 51
DL, 92I/8E 275
  geological, geophysical, and geochemical report 358
DM, 103P/6W 68
DO, 92I/7W 264
DO, 92I/10W, 11E 253
  geophysical report 359
Dobell, E. C. 224
DOC, 92L/1E, 8E 210
Dodd, D. W. A. 368
Dodson, E. D. 109
DOE, 82E/9W 310
  geological report 350
Dolan's Limited, sand and gravel 403
DOLLAR, 82F/4W 315
Dolly Varden Mines Ltd., DOLLY VARDEN, NORTH STAR, TORIC, WOLF, 103P/12E 60
DOM, 93L/6E 87
DOM, 104P/5W 40
DOME, 104P/6W 42
DOMINEER, 92F/11E, 11W, 14E 212
Dominic Lake Mining Company Ltd., TC, SPUR, JC, 92I/10E 238
DOMINION, 92I/10E 237
DOMINION, 93L/6E 87
Domtar Chemicals Limited (Lime Division) 396
DON, 92I/10W, 11E 261
DON, 92L/12W, 12E 202
  geochemical report 364
DON, 49° 120° S.W., geochemical report 353
DON (KEF GROUP), 50° 127° N.E., geochemical report 364
DONA, 82E/13W 293
  line-cutting 351
Donald, J. 420
Donald, K. G. 410, 411
DONAN, 82E/10W 302
  geological and geophysical report 350
DONNA, 93L/9E 118
DONNA, 94C/3E 105
Donna Mines Ltd., BEVELEY, 94C/3E 105
DONNY, 92I/7E, 7W 270
  geophysical and geochemical report 360
DOR, 54° 128° S.E., geochemical report 370

PAGE
Dore Metals Ltd., DORE, POLLY, 92C/9W 222
Dorita Silver Mines Ltd.—
  FERGUSON, 94C/11E 109
  NWB, 93L/1E, 1W 151
DOT, 82K/14E 336
DOT, 92H/10E 280
DOT, 92I/10E 235
DOT, 92O/2W 186
DOT, 93B/9W 173
DOT, 93L/7E 122
DOTE, 92H/15E 276
  geochemical report 353
DOUBLE X, 93L/2W, 2E 126
DOUG, 92H/10W 281
  line-cutting 352
Douglas, D. C. 224
Douglas Lake area 275
Dove, J. 104
Downie, G. W. 345
Dresser Industries, Inc., YORNOC, 82K/8E 344
  geophysical reports 356
Dryad Mines Ltd., T, FIL, 92I/6W 241
DS, 94D/15E 104
DUBLIN QUEEN, 82K/3E 332
  production, *see* Table 12 428
DUDE, 92I/7W 270
  geophysical and geochemical reports 358
Dufour, I. 419
DUKE, 92H/16W 280
  geophysical report 353
DUN, 51° 119° S.W., line-cutting report 366
  see also BEX 233
Duncan area 224
Duncan River area 335
Dunn, W. St. C. 177
Dunsmore, R. 222
Dusty Chief Mines Ltd., BEV, LLOYD, DEN, 82E/5E, 6W 294
  line-cutting 351
Dusty Mac Mines Ltd., DUSTY MAC, 82E/5E 294
  production, *see* Table 12 428
Dutch Creek area 344
DUTCHY, 82K/8W 344
Duval Corporation of Canada 163
  POLLYANNA, 93B/9W 173
Dvorak, George 57
DW, 92I/10W, 11E 259
  geochemical report 359
DY, 92H/10E 278

E

EA, 92I/6E 259
EAGLE, 92I/3E 273
EAGLE, 92J/16W 188
EAGLE, 94K/11W 51
Eagle River area 43
EARL, 93L/2W, 2E 126
East Kootenay Inspection District, coal 410
EASTERN STAR, 103I/9W 76
Eastmont Silver Mines Ltd., WESTMOUNT, 82F/14W 326
  production, *see* Table 12 429
Eastwood, G. E. P., reports by, Granite Mountain Stock, geology of 162
EASY M, 82K/7W 335
Eberts, Henry 413, 414
EBL, 82M/5W 233
ECHO, 92L/5E 206
ED, 92I/7W 270
  geophysical and geochemical report 358
ED, 92I/11E 251
  geophysical report 361
ED, 92L/11E 209
  geophysical and geochemical report 364
ED, 93L/7E 121
ED, 50° 119° N.E., line-cutting 357
EDEN, 921/10W 251
  geophysical report 358
EDIE, 49° 120° N.E., line-cutting 353
Effinger, F. D. 421
EHOLT, 82E/2E 308
EIGGAM, 92I/14W 241
EIN, 82L/6W 239
ELI, 82F/4W 315
  geological, geophysical, and geochemical report and line-cutting 350
ELK, 92F/5E, 12E 219
ELK, 92H/7E 288
ELK, 92J/3E 191
ELK, 92L/5E 206
ELK, 93K/3E 153
ELLA, 82M/12W 229
ELLA, 92I/10W 252
  geological and geophysical reports and line-cutting 358
ELLA, 92I/10W 254
ELN, 92H/9W 280
  geochemical report 353

PAGE

- ELOISE, 104P/4W 41
- ELVA, 92I/7E, 7W 269
- EMERALD, 93E/11W 92
- EMERALD GLACIER MINE, 93E/11W 92
- Emil Anderson Ltd. 416
- EMILE, 92H/5W 195
- EMILY, 82N/4W 339
- Emkay Canada Natural Resources Ltd. 420
- Emkay-Scurry Limited 420
- EMMA, 82E/2E 306
- Emperor Mines Ltd., DEBBIE, 104P/1E 50
  - geophysical report 374
- Empey, C. 184
- Empire Mercury Corporation Ltd., MANITOU, 92O/2W 185
- EMPRESS, 92H/5E, 5W 195
  - geophysical and geochemical report 355
- EMPRESS, 92H/9E 281
  - geochemical report and line-cutting 353
- EMPRESS, 92O/3W 181
- EMU, 104G/7W 46
- EN, 93A/7E 177
  - geochemical report 367
- Endako area 152
- Endako Mines Ltd.—
  - CO, 93K/3E 153
  - ENDAKO MINE, 93K/3E 153
    - production, *see* Table 12 427
  - LORNE, 93K/11W 120
  - SAM, 93K/3E 152
- Ensbrook Mines Ltd.—
  - BRENDA, MAYDAY, MAYBE, TELL, 52° 122° S.E., geochemical report 368
  - NOR, 92L/11E 208
- ENTERPRISE, 82F/14W 325
  - production, *see* Table 12 428
- ENTERPRISE, 92I/8W 275
- Enterprise Creek area 325
- Enterprise Silver Mines Ltd., ENTERPRISE, 82F/14W 325
  - production, *see* Table 12 428

PAGE

- EPSILON, 92K/3W 212
- Erie Creek area 318
- ERK, 82E/13W 293
- Ernie's Trucking, sand and gravel 402
- ESPERANZA, 103P/6W 64
- ESTEVAN, 92E/8W, 9W 216
- Estey Agencies Ltd.—
  - HOL, 50° 127° N.W., 50° 128° N.E., geological and geophysical report 364
  - KRAIN, 92I/10W, 11E 259
  - placer leases, geophysical reports 356
- ESTHER, 92H/10E, 15E 278
- ETA, 92K/3W 212
- ETHEL, 93L/2E 139
- ETHEL, 93M/6W 99
- ETHEL FRACTION, 93M/6W 99
- ETTA, 92I/2W 272
  - geophysical report 358
- EUREKA, 82F/6W 316
- EUREKA, 92H/6W 199
- EV, 92H/7W 282
- EV, 93B/9W 173
- EVA BELL, 82E/1E 311
- EVELYN, 92K/3W 212
- EVENING STAR, 92I/9W 235
- EWE, 104I/9E 48
- EWE, 104P/3W 43
- Ewer, E. H. 220
- Ewers, Kenneth G. 351
- EXCELSIOR, 82E/2E 308
- EXPO, 92G/10E 194
- EXPO, 92L/11W 205
- EXPO, 92L/12W, 12E 202
- EXTENSION, 92L/2W 215
- EZRA, 92I/10W 251
  - geophysical reports 358
- EZZ, 92I/11E 252
  - geochemical report 361
- EZZ, 92I/6E 262

F

- F, 92F/5E, 12E 219
- F, 54° 127° N.E., geochemical report 370
  - *see also* GLACIER GULCH 85
- FAB, 93E/11E 98
  - geological and geochemical report 368
- Fairborn Mines Ltd., placer 376
- Fairey & Company Limited, diatomite 389
- Fairless Creek Placer, 92O/7E 376
- FAITH, 82F/9E 346
- FAITH, 92F/11W 213
  - geophysical report 355
- Falaise Lake Mines Ltd., LE ROI, NICKEL PLATE, 82F/4W 314
- Falconbridge Nickel Mines Limited—
  - BAB, 93L/9W 118
  - DAVIS, 50° 126° S.E., geophysical report 363
  - DEL SANTO, 93L/10E 120
  - DOM, 93L/6E 87
  - FAITH, RIM, 92F/11W 213
    - geophysical report 355
  - KING, QUEEN, JACK, 93L/3W 151
    - geochemical report 368
  - LAVA, 93L/11E 86
    - geological, geophysical, and geochemical reports 370
  - MINO, 103F/8E 72
    - geochemical reports 369
  - MO, 92P/9W 231
  - RED, 93L/9E 119
  - TURN, 104I/7W 49
    - geophysical report 374
- Falkland area 239
- FALL, 104P/5W 40
  - geophysical report 374
- FALUKA, 104N/11W 36
  - geological report and line-cutting 374
- FAR, 93N/2W 107
  - geophysical report and line-cutting 371
- FARSIDE, 82K/14E 336
- FARWELL, 92O/15E 182
  - geochemical report 367
- Fawn Bay Development Ltd., RAM, 104P/3W 43
- FBI FRACTION, 92I/6E 262
- FE, 92L/2W 215
- FEBRUARY, 82G/11W 348
- Federal Mining and Smelting Co., SILVER QUEEN, 93L/2W, 2E 126
- FERGUSON, 94C/11E 109
- FERMANAGH, 82K/16W 341
- FERN, 82E/15W 300
- FERN, 82M/5E 233
  - geological and geophysical report 366
- FFE, 93B/9W 174
- FG, 92P/14E 184
  - geophysical report 367
- FG, 93L/9E 118
- FH, 82M/12W 230
  - geochemical report 366
- FH FRACTION, 82M/12W 230
- FI, 93B/9W 174
- FIL, 92I/6W 241
- Filek, John 405
- Filyk, A. 319
- FIN, 53° 121° S.W., geophysical report 368
- Finlay Ranges area 109
- FIR, 92I/2E, 2W 271
- FIR, 93A/12E 175
- FIRE, 93M/16W 108

PAGE
FIRST CHANCE, 82E/15E, 16W 300
FISH LAKE, 92O/5E 180
FIX, 92H/16W (*see also* MABEL) 280
geophysical reports and line-cutting 353
F. K. Explorations Ltd., CHAPUT, 82L/7W 299
production, *see* Table 12 429
FL, 92L/2W 215
production, *see* Table 12 426
Flagstone Mine Limited, BIN, 92I/6E 249
FLAP-JACK, 92O/3W 181
FLATS, 92L/12W, 102I/9E 201
Flesher, E. 180
FLO, 92J/7E, 10E 189
FLORENCE, 92O/2W 185
FLY, 92P/9W 231
FLY, 93A/6E, 6W 177
FM, 103I/9E 83
FOG, 82K/7W 336
FOG, 93M/14W 100
FOG, 54° 127° S.E., geological, geophysical, and geochemical report 370
Foote, Ken 254
FOR, 92I/10W 254
FOR, 50° 127° N.W., N.E., geochemical report 364
FORD, 104I/5W 44
geophysical report 374
Fording Coal Limited 420, 421
FOREMOST, 92F/4E 217
Forestburg Collieries Limited 422
Forest Kerr Mines Ltd., FOR, BILL, 50° 127° N.W., N.E., geochemical report 364
FORGE, 92I/10W 255
FORGETFUL, 103I/9E 83
4-SHUR, 82E/2E 304
Forsythe, J. R. 232
Fort Langley Aggregates, sand and gravel 402
Fort Reliance Minerals Limited—
FIR, 92I/2E, 2W 271
KALAPPA, 92F/4W 217
PW, RW, JB, 92E/8E, 92F/5W 216
Fort St. James area 155
Fort Steele area 347
Fort Steele Mining Division—
metals 344
phosphate 398, 399
placer 377
Forster Creek, placer 377

PAGE
Forster Creek Uranium, 82K/15E 377
Fortune Channel Mines Ltd., BARR, LYBDENUM, 93L/7W 122
Foster, D. R. 262
Fothergill, W. C. 338
Four Square Exploration Ltd.—
CANDY, 92C/16E 223
DORE, POLLY, 92C/9W 222
FOURTH OF JULY, 82K/3E 331
Fouty Bros., sand and gravel 403
FOX, 104N/11W 36
geological and geochemical report 374
FOX, 104P/3E 43
FOX, 50° 121° N.E., geochemical report 362
Fox, George 266
Fox, G. D., NEW ARLINGTON, *see* Table 12 427
Frank Merriam & Sons, sand and gravel 404
FRANKIE, 93N/6W, 11W 105
Franks, Robert Joseph 228, 230
Fraser Basin area 155
FRASER No. 1 FRACTION, 92H/7E 288
Fraser River, placer 376
Fraser Valley Lime Supplies, limestone 397
FRED, 94D/1W 102
FREDDY, 82F/14W 326
production, *see* Table 12 428
FRESNO, 82F/6E 316
FRESNU, 82F/6E 316
FRI, 92H/7E 288
FRIDAY, 92I/7E, 7W 269
FRISBEE, 93M/7E 113
FROG, 93K/8E 157
Frontier Exploration Limited, DIAMOND BELLE, 93L/2E 139
FRY, 92O/2W 186
FS, 92I/15E, 10E 239
Fuerstner, Max 28
FU-HU, 93G/16E 160
FUKI, 82E/10W 302
geological and geophysical report 350
Fulkeo, W. 428
Furry, Oliver 193
F & W, 92I/7W 270
geophysical and geochemical reports 358
Fyles, James T., reports by—
CARIBOO, 82F/8E 347
RED STAR, 92H/2E 290

G

G, 92L/10E 190
GA, 92I/7W 252
G & A Trucking Ltd., sand and gravel 403
GABBRO, 92C/8E 224
GAL, 49° 118° S.E., geological report 350
GALENA FARM, 82F/14W 326
Galleon Explorations Ltd., UTA, ATU, BON, 50° 127° N.E., geochemical report 365
Galoco Explorations Ltd., GAL, HIDDEN HAND, 49° 118° S.E., geological report 350
Gambardella, A. 98
GAMMA, 92K/3W 212
GAP, 92I/7W 253
Garland, L. N. 331
GARNET, 82E/1E 311
geophysical report 350
GARNET, 57° 126° S.W., geological report 372
Garraway, A. J. 423
GARY, 93L/2E 141
GARY, 50° 127° N.W., geochemical report 364
GATE, 92C/15E, 16W 221
Gatenby, L. B. 174, 190
GAV, 93N/11E 106
GAV, 104G/7W 46
Gavel, G. H. 406
GAYLE, 50° 120° S.W., geophysical report 358
Gaza Mines Ltd., GAZA, 92I/7W 253
line-cutting 358

GB No. 1 GROUP, 92L/12E 204
geochemical report 364
GB No. 2 GROUP, 92L/12E 203
geochemical report 364
GC, 92I/11E 253
line-cutting 361
GC (Mount Copeland mine area), 51° 118° S.E., 50° 118° N.E., geological and geochemical reports 365
GD, 104I/3E 47
G. D. Fox and Associates, NEW ARLINGTON, 82F/3W 318
GE, 49° 120° S.E., N.E., geophysical report 353
GEO, 92L/8E 210
Geophoto Services Ltd.—
LC 1, PETER, 104K/7E 37
geological report 374
LC 2, 104K/7W 37
geological, geophysical, and geochemical report 374
George, Mary 87
George, Thomas 87
George, W. A. 401
Geo-X Surveys Ltd. 50
GER, 94K/11W 51
GG, 93B/9W 173
GG, 93E/12E 76
GGB, 92L/11W 208
GI, 51° 121° S.E., geophysical report 367

PAGE
GIANT, 92H/5E, 6W 197
geophysical and geochemical reports 355
Giant Explorations Limited, SOOKE COPPER, 92B/5E 225
Giant Mascot Mines Limited—
AM, 92H/3E 199
PRIDE OF EMORY MINE, 92H/6W 196
production, *see* Table 12 427
Gibbeson, M. 201
Gibraltar Mines Ltd. 163
JAN, SUMMIT, 93B/9W 173
SUNSET, 93B/9W 173
Gibsons Building Supply, sand and gravel 403
Gilbertson, M. E. 190
Gilbertson, W. 190
Gilleland, H. B. 110
GILLEY QUARRY, 92G/2E, building-stone 385
Giscome area 160
GJ, 82E/2E 307
GLACIER, 93E/11W 92
GLACIER GULCH, 93L/14W 85
geochemical report 370
GLAD, 82E/12W 293
geophysical report 351
Glasmire, S. H. 187
GLEN, 103I/9E 79
Glen Copper Mines Limited, GRIZZLEY, GLEN, SNOWSHOE, SNO, 103I/9E 79
GLORY, 93E/14W 93
G. M. Explorations Limited, AM, 92H/3E 199
GN, 51° 118° S.W., geophysical report 365
GNAT, 92I/7W 253
Gnat Creek area 44
GO, 92I/10W, 11E 253
geophysical report 359
GO, 103I/9W 76
GO, 104J/4E 38
geological and geochemical report 374
Godfrey, F. A. 73
Goetting, B. 301
GOLCONDA, 82E/5W 297
production, *see* Table 12 428
GOLCONDA, 103I/9W 81
GOLD, 82L/6E 298
geophysical report 357
GOLD, 49° 121° N.E., geological and geochemical report 355
GOLD BRICK, 93L/7E 122
GOLD BUG, 92I/16W 235
GOLD STANDARD, 82F/3E 320
GOLD STAR, 103I/9W 76
geological report 370
GOLDEN, 59° 129° S.W., geophysical report 374
see also SILVER QUEEN 41
GOLDEN GATE, 92F/4W 217
GOLDEN HORN, 82F/4W 314
Golden Mining Division—
barite 382, 383
metals 341
placer 377
GOLDEN STAR, 92I/9W 235
GOLDEN WEST, 82L/10W 298
Goodell, R. 189
GOODENOUGH, 82L/6W 299
Goodwin, R. A. 157
GOOF, 82M/12W 229
Goosly Lake area 142
GORDIE, 92O/2E, 2W 186
GORDON, 92K/12W, building-stone 385
GORDON No. 3, 92P/9W 231
Gosnell area 228
GRACE, 82M/13W 230
GRACE, 92O/2W 186
Graham, Mr. 375
Graham, H. R. 342
Graham Island area 72
sand and gravel 400
Granby Consolidated Mining, Smelting and Power Co. Ltd., MAPLE BAY, 103O/8E 59

PAGE
Granby Mining Company Limited, The—
BADGE, 93L/16W 115
BULLER, 82E/2E 309
geophysical report 350
BULLION, 82M/12W 229
COPPER MOUNTAIN MINE, 92H/7E 284
Phoenix Copper Division, PHOENIX MINE, 82E/2E 305
production, *see* Table 12 426
SILBAK PREMIER MINE, 104B/1E 56
Grandeur Mines Ltd., WIGGINS CREEK, 93A/5E 176
geochemical report 368
Grand Forks area 309
Grandora Explorations Ltd.—
CM, 92I/11W 241
MICK, SKIDOO, SWAMP, 93M/1W 114
NEV, 92H/7E 288
Granduc Mines, Limited—
GRANDUC MINE, 104B/1W 54
MAX, 104B/7E 54
geophysical report 372
SILBAK PREMIER MINE, 104B/1E 56
SWAN, 103P/13W 58
Granduc Operating Company, GRANDUC MINE, 104B/1W 54
GRANDVIEW, 82F/14E 333
Granisle Copper Limited, GRANISLE MINE, 93L/16E 114
production, *see* Table 12 428
GRANITE, 82F/9E 346
Granite Mountain Stock—
geology of 162–172
introduction 162
general geology 164
structural geology 166
mineralization 169
GRANITE SCHEELITE, 92H/7W 282
gravel and sand, *see* table 400–404
Great Central Mines Ltd., HM, 92F/6E 220
Great Horn Mining Syndicate Inc., PEAK, DAY, 49° 118° N.E., N.W., geological and geochemical report 351
GREAT NORTHERN, 82K/11W 341
Great Northern Petroleums and Mines Ltd.—
MIKE, BOB, 92L/6E 209
geophysical and geochemical report 363
SHUSWAP, GN, 51° 118° S.W., geophysical report 365
TIP, 92I/11E 265
geophysical and geochemical report 362
Great Plains Development Company of Canada, Ltd.—
ADMIRAL DEWEY, CYCLONE, ACE, 92I/9W 236
MONEY, 104H/12W 45
ROYAL, RC, CANA, 92I/6E 263
STAR, 104I/3E 46
Great Slave Mines Ltd.—
GE, VI, 49° 120° S.W., N.E., geophysical report 353
MAPLE BAY, 103O/8E 59
GREEN, 93A/12E 176
GREEN, 93K/5E 151
GREENACRES, 82F/10W 334
Greenlee, B. B. 193
Greenwood area 304
Greenwood Mining Division, metals 301
GREG, 93N/2E 107
geophysical and geochemical report 371
Grenmac Silver Mines Limited, BELLE AIRE, 82F/10W 334
GREY COPPER, 92H/6W 199
GREYHOUND, 82E/2E 307
GREY ROCK, 92H/7E 288
GRIT, 93L/11E 86
Gritzuk, N. 54

PAGE
GRIZZLEY, 103I/9E 79
GRIZZLY, 82M/5E 233
geological and geophysical report 366
GRIZZLY, 92O/2W 185
GROUSE, 94C/3E 105
GROVER, 82F/14W 326
G-TO, 82E/2W 303
geological and geochemical report 350
G-TO FRACTION, 82E/2W 303
GUB, 92L/11W, 12E 204
GULL, 92B/5E 225

PAGE
Gunnex Limited—
AJS, 92I/16W, 92P/1W 234
ROSE, 92I/16W 234
Gunn Mines Ltd. 163
HD, 93B/9W 174
Gutrath, G. 38
GUY, 93L/14W 81
Guyett, C. 375
GYPO, 82E/4E, silica 407
gypsum 389
GYPSY, 103P/13W 57

H

H, 82F/14E 333
H, 92L/8E 210
H, 92L/12W 202
H, 102I/9E, 16E 201
HA, 93B/9W 174
Hachey, J. H. 100
Haddrell, G. H. 297
Haines road area 28
HALIFAX, 82E/1E 311
Hall, E. H. 187
Hall, Ralph 157
HALO, 92H/15E 276
geophysical report 353
HALTON CHIEF, 82K/3E 330
Hamilton, J. M. 345
Haney Brick and Tile Limited, clay and shale 387
HANK, 92I/1W 273
HANNANDOR GOLD LTD., placer 376
Hansen, Howard 232
Hansen, J. C. 428
Hansen, L. 122, 216, 217
Hansen, V. 326
HAR, 92L/11W 205
HAR, 56° 130° S.W., N.W., geophysical report 372
see also MAX 54
Harcol Placer Production Limited, placer 376
HARD, 50° 127° N.W., N.E., geological, geophysical, and geochemical report 363
HARD CASH, 92J/2W 192
HARDIE MOUNTAIN, 92I/15W 240
Hardwicke, Boyd 114
Hardy Minerals Ltd., DEM, 92L/11W, 12E 205
HARMER RIDGE, OPEN PIT, MICHEL COLLIERY, 49° 114° N.W. 416
HARMON, 94E/11E 102
geophysical and geochemical reports 373
HARP, 82M/12W 229
Harris, G. R. 292
Harris, J. M. (Mrs.) 329
Harrison, L. 188
Harrison Lake area 195
HARRY, 92O/2W 186
HARRY, 93M/3W 99
Harvey, W. E. 198
HAS, 93B/9W 174
HAT, 93K/16W 155
geophysical report 369
HATCH, 92I/7W 256
geophysical report 359
HATTIE, 82F/6W 318
HAUSER, 82K/7W 336
HAVANNA, 82E/1E 311
HAWK, 93K/8E 157
HAWK, 93L/2W, 2E 126
HAWTHORNE, 92I/9W 236
geophysical and geochemical report 359
Hayes Creek area 280
HAYWIRE, 103P/5E 67
Hazelton area 98
Hazelton Mountains area 76
HB, 93L/11E 86
HBG, 93M/3W 99
HC, 104I/2W, 3E 47
geological report 373

HD, 93B/9W 174
HD, 104P/5W 40
Heard, T. 274
HEARTS CONTENT, 93A/5E 176
geochemical report 368
HEATH, 93N/6E 106
geological and geochemical report 371
HECLA, 82K/3E 332
Hecla Operating Company, SNO, BIRD, 104G/7W 46
Heddle, D. W. 321
HELEN, 92L/6W 207
HELENA, 82N/4W 339
HEM, 93B/9W 174
HEM, 93L/15E 100
HEN, 82E/4E 298
Henderson, H. 416
HEP, 92L/12W, 12E 202
HERB, 82E/1E 311
geophysical report 350
HERB, 92F/6E 219
HERCULES, 92K/3W 212
HESQUIAT, 92E/8W, 9W 216
Hesquiat area 216
Hewett, F. G. 422
Hewitt, 82F/14W 326
Hewton, R. 155
HG, 92H/7W 282
HG, 93N/6W, 11W 105
HH, 92H/15E 276
geophysical report 259
HH, 92I/6E 259
HI, 92I/6E 255
geophysical and geochemical report 361
HI, 93N/3E 107
geological, geophysical, and geochemical report 371
HI, 94K/11W 50
Hibernia Mining Co. Ltd., ANNE, 92C/16E 223
geochemical report 349
Hickman, R. N. 204
HIDDEN CREEK, 92P/8W 232
HIDDEN HAND, 49° 118° S.E., geological report 350
HIDDEN TREASURE, 93M/6W 99
HIGH, 92I/10W 254
Highland Bell Mines Ltd., HIGHLAND BELL MINE, 82E/6E 301
production, *see* Table 12 426
Highland Lode Mines Limited, SUNSHINE, LO, LEE, 92I/7E, 7W 269
Highland Mercury Mines Limited, CIN, 93K/9W, 10E 156
Highland Queen Mines (1968) Ltd., JT, TH, LD, 92I/6E 257
Highland Silver Mines Ltd., RAMBLER, 82E/6E 301
Highland Valley area, metals—
Kamloops Mining Division 242
Nicola Mining Division 269
Highland Valley Mines Ltd.—
ELLA, 92I/10W 252
geological and geophysical reports and line-cutting 358
JOE, BET, 92I/7W 256
geophysical report 359
TAR, 92I/6E 265
geological report 362

PAGE
Highmont Mining Corp. Ltd., AM, IDE, PEN, 92I/6E, 7W 244
Highpoint Mines Ltd.—
  GARY, 50° 127° N.W., geochemical report 364
  HIGHPOINT (DEB), 92I/6E 254
    geophysical report 361
Hill, W. J. 348
HILLCREST, 92C/9E 223
Hills Bar, placer 376
HILLSIDE, 82K/11W 341
HILLSIDE, 92C/9E 223
HILL 60, 92F/9W 214
HILLTOP, 82N/2E, barite 382
HILLTOP, 92I/15E, 10E 239
  geophysical reports 358, 359
Hinkel, Melvin 322
Hixon Creek, placer 375
Hixon Placers Inc. 375, 376
HJ, 92I/10W 250
HJ, 103I/9W 77
HK, 93L/5E 91
HM, 92F/6E 220
HN, 49° 120° N.E., line-cutting 354
  see also TOE, BOOT, MALACHITE 277
HO, 93A/6W 177
HOBO, 59° 133° N.E., geological and geochemical reports 374
Hoehn, R. E. (Mrs.) 304, 350
Hogan, J. W. 174, 193
Hogan Mines Ltd.—
  BOOM, FRANKIE, 93N/6W, 11W 105, 106
  NS, NSZ, MIKE, 93N/3E, 6E 106
Hogarth, D. 50
Hogem Ranges area 108
HOL, 50° 127° N.W., 50° 128° N.E., geological and geophysical report 364
Holberg Mines Ltd., CEE, KAYE, JACK, 92L/12W, 102I/9E 202
  geophysical report 363
Holcapek, T. 201, 219
Holland, F. 196, 199
Holland, Stuart S., review 19
HOLLY, 94D/1W 108
  geological and geochemical report 372
Holy Cross Mountain Mines Ltd., EUREKA, VICTORIA, 92H/6W 199
HOMESTAKE, 82F/14W 325
  production, *see* Table 12 429
HOMESTAKE, 82M/4W 234
HONDA, 92H/7W 290
  geochemical report 354
Honda Mining Co. Ltd., RM, 104G/4E 46
  geophysical report 373
HONEST JOHN, 82N/2E, barite 382
HOPE, 82F/9E 346
HOPE, 82K/16W 341
HOPE, 82M/4W 234
HOPE, 93M/3W 99
PAGE
HOPE, 103I/15W 70
Hope area 196
HOPEFUL, 82L/14E, silica 405
HOPE SILVER, 103I/15W 70
Horiuchi, H. 78
HORN SILVER MINE, 82E/4E 297
  production, *see* Table 12 428
HORSEFLY, 53° 129° N.E., geophysical report 369
Horsefly area 177
HORSESHOE, 82K/12E 340
HORSESHOE, 82K/16W 341
Horsethief Creek area 343
HOUSTON, 93N/11W 105
  geochemical report 371
Houston area 120
HOWARD, 82F/3E 316
  production, *see* Table 12 427
Howe Sound area—
  metals 193
  sand and gravel 403
H.P. FRACTION, 92H/7E 288
Hrkac, R. A. 188
HU, 104J/8E 44
HUB, 92I/11E 254
HUB, 103I/9E 83
HUB, 104I/9E 48
HUD, 82L/6W 299
Hudson Bay Exploration & Development Co. Ltd., HUGAL, HUD, 82L/6W 299
  geophysical report 357
Hudson Bay Range area 85
HUGAL, 82L/6W 299
  geophysical report 357
Hughan, Peter 69
Hughson, J. 346
HULL, 93L/9W 119
Hulley, K. R. 69
HUMBOLT, 82F/10E 337
Humphrey Construction Ltd., MOUNT COPELAND MINE, 82M/1W 338
Hungle, J. 196
HUNTER, 93L/11E 86
Hunter, B. J. 235
Hunter, I. A. 408
Hunter, L. H. 246
Hunter Basin Mines Ltd., HB, AJ (HUNTER), 93L/11E 86
Hunter Point Exploration Ltd., MASTODON, 82E/1E 311
Husselbee, Mr. 375
Hutton, J. 317, 427
HW, 50° 127° N.W., geological and geochemical report 364
Hyland River, placer 375
Hyperion Silver Mines Limited, COLORADO, 82F/14W 325
  production, *see* Table 12 429

I

IAN, 92L/11W 208
ICE, 93E/14W 92
ICE, 93M/14W 101
  geochemical report 371
ICE (COB, JAN, MAD), 93M/14W 101
ICE, 114P/9W 28
ID, 104G/7W 46
IDE (Highmont), 92I/6E, 7W 244
IDE (Minex), 92I/7W 244
  geological, geophysical, and geochemical report 357
Ideal Cement Company (Rock Products Division) 396
IG No. 1 FRACTION, 92I/10W 250
Iiyama Mines Ltd., BOY, CHATKO, 92I/2E, 2W 274
IKE, 82E/1W 309
  geological, geophysical, and geochemical report 351
ILK, 92H/7E 288
I'LL CHANCE IT, 103P/6W 64
ILSE, 92H/8W 289
  geophysical and geochemical report 353
IM, 92I/9W 236
  geophysical and geochemical report 359
IMPERIAL, 82K/8W 343
  geophysical report 356
Imperial Limestone Company Limited 397
Imperial Metals and Power Ltd.—
  coal 421
  HG, IRON, DB, EV, 92H/7W 282
Imperial Oil Enterprises Ltd.—
  DIBBLE, 82G/11W 348
  KIM, 82G/12W 246
    geophysical reports 349
INDEX, 82F/14E, *see* ANDEX 333
INDIAN FRACTIONS, 92I/10W 251

Page
INDIAN RIVER COPPER, 92G/11E — 193
industrial minerals — 379-408
Ingenika River area — 109
Ingerbelle Mines Limited, INGERBELLE, 92H/7E — 283
INGERSOL, 92K/3W — 212
Inklin River area — 37
Inlet Exploration Limited, placer — 375
Inonoaklin Creek area — 323
International Marble & Stone Company Ltd.—
  building-stone — 383, 384
  limestone — 398
International Mine Services Limited, WATERLOO No. 3, 82E/15E, 16W — 300
Interprovincial Silver Mines Ltd., BIG CANYON (RUFFNER), 104N/12E — 28
INVINCIBLE, 82F/3E — 319
IOTA, 92K/3W — 212
IOU, 92I/6E — 262
IR, 92H/10W — 281
IRA, 92H/10W — 281
IRIS, 92O/2W — 185
IRON, 92H/7W — 282
IRON, 92L/6E — 208
  geophysical report — 364
IRON CAP, 104P/6W — 42
IRON HAT, 92J/2W — 192

Page
IRON KNOB, 92L/6W — 207
  geophysical report — 363
IRON MASK, 82K/8W — 343
IRON MIKE, production, *see* Table 12 — 427
Iron Mountain area — 319
IRON WEDGE FRACTION, 92J/2W — 192
ISA, 93N/2E — 107
Iskut Silver Mines Ltd.—
  DUBLIN QUEEN, 82K/3E — 332
    production, *see* Table 12 — 428
  RAY, 93L/1W — 148
ISLAND, 92F/4W, 5W — 217
ISLAND COPPER, 92L/11W — 204
Island Excavating Ltd., sand and gravel — 403
Island Readimix Limited, sand and gravel — 403
ISOBELLA, 82M/13W — 230
Iso Explorations Ltd., AXEL, MAX, JIB, 93B/9W — 174
IT, 92C/9W, 10E — 222
IT, 93B/9W — 173
IT, 93E/14W — 92
IVAN FRACTION, 93L/2E — 139
IW, 94D/15E — 104
IXL, 82E/9W — 310
IXL, 93L/2W, 2E — 126
Izumi Metal Mining Co. Ltd., CRIS, JAE, LF, BO, 92I/6E — 250

J

J, 92I/7W — 264
J, 92I/9W — 237
JAC, 92I/11E — 264
  geophysical report — 361
JACK, 82E/1E — 311
  geophysical report — 350
JACK, 82M/4W — 233
  geological report — 366
JACK, 92B/5E — 225
JACK, 92I/11E — 255
  geophysical report — 361
JACK, 92I/11E — 256
JACK, 92L/12W, 102I/9E — 201
  geophysical report — 363
JACK, 93L/3W — 151
  geochemical report — 368
Jack Cewe Ltd., sand and gravel — 400
JACK OF CLUBS, 92F/4W — 217
JACKAL, 103I/16E — 84
JACKIE, 82F/8E — 347
jade — 389
JAE, 92I/6E — 250
JAE, 92I/11E — 256
JAF, 82G/6W — 348
Jaffray area — 348
JAM, 82M/12W — 229
JAM, 93N/6W, 11W — 105
JAMES, 92I/7W — 253
James, D. H. — 115
JAN, 92I/6E — 255
  geophysical and geochemical report — 361
JAN, 93B/9W — 173
JAN, 93M/14W — 101
JANE, 82M/12W — 229
Jason Explorers Ltd.—
  BEAVER, LOON, 104N/12W — 36
  GG, 93E/12E — 76
  GLORY, 93E/14W — 93
Jason Oils Ltd., MERC, 58° 120° N.W., geological report — 359
JAY, 92I/7W — 253
JAY, 92I/7W — 264
JAY, 92I/11E — 256
JAY, 92N/13E — 185
JAY, 93L/14W — 85
JB, 92E/8E, 92F/5W — 216
JB, 92I/10W — 250
JB, 53° 122° S.E., geophysical and geochemical report — 368

JC, 92I/10E — 238
JE, 92I/10W, 11E — 261
JE, 92P/14W, 93A/3W — 178
JEAN, 92I/10W — 255
  line-cutting — 359
JEANIE, 82F/8E — 347
JEB, 82K/14E — 336
JEFF, 92I/7W — 264
Jenkins, James — 403
JENNY LIND, 82E/1E — 311
JERICHO, 92I/7W — 253
  geophysical report — 359
JERICHO, 92I/7W — 256
  geophysical report — 359
JERSEY MINE, 82F/3E — 319
  production, *see* Table 12 — 427
Jericho Mines Ltd., JERICHO, 92I/7W — 253
Jervis Inlet, sand and gravel — 403
JESS, 94D/1W — 108
  geological and geochemical report — 372
JET LINE, 92I/10E — 235
JH, 93L/1E, 1W — 150
JH, 94D/15E — 104
JHG, 93J/1W — 100
JIB, 93B/9W — 174
JILL, 92L/12W, 102I/9E — 201
  geophysical report — 363
JILL, 92H/7E — 287
JILL, 49° 119° S.W., geophysical report — 352
JIM, 92I/7W — 253
JIM, 92L/11W — 204
JIM, 93K/5E — 151
JIM, 93L/2W — 141
JIM, 104B/7E — 54
JIM HILL, 82E/15E, 16W — 300
JJ, 92I/7W — 264
JJJ, 92H/7E — 287
JKB, 56° 127° S.E., geochemical report — 372
JO, 92I/10W, 11E — 261
JO, 92I/11E — 256
JO JO, 82K/3E — 330
JOB, 92I/10W — 251
  geophysical report — 358
JOE, 82E/4E — 298
  geophysical report — 352
JOE (Continental Cinch Mines Ltd.), 92I/11E — 256
JOE (Highland Valley Mines Ltd.), 92I/7W — 256
  geophysical report — 359

PAGE
JOE (Trumpeter Mines Ltd.), 92I/11E 256
geophysical and geochemical reports 361
JOE, 93L/6E 92
JOE, 93L/9W 119
JOE, 103I/9W 77
JOE, 51° 121° S.E., geophysical report 367
JOE, 56° 130° S.W., N.W., geophysical report 372
see also MAX 54
JOEM, 104P/6W 41
JOEY, 82F/4W 315
JOHANNESBURG, 82E/2E 308
geophysical report 350
JOHN, 82L/11W 240
JOHN, 92K/12W, building-stone 385
JOHN, 94K/11W 51
geological and geophysical report 373
JOHN (Mount Copeland Mine area), 51° 118° S.E., geological report 365
Johnson, D. 118
Johnson, J. K. 396
Johnson, R. C. 203
Johnson, T. 190
JOMO, 104N/11W 36
geological report and line-cutting 374
JON, 92H/3W 196
JON, 92I/6E 257
Jones, H. 423
JONN, 92I/6E 257
Jordan River area 224
Jorgensen, Michael E. 290, 354
JOY, 92I/11E 256
JOY, 93M/1W, 8W 112

PAGE
JOY, 104I/3E 47
Joy, R. 316
JP, 93B/8E 175
geophysical report 368
JR (Mount Copeland mine area), 51° 118° S.E., 50° 118° N.E., geological and geochemical reports 365
JS (Mount Copeland mine area), 51° 118° S.E., 50° 118° N.E., geological and geochemical reports 365
JT, 92I/6E 257
geological and geophysical reports 361, 362
JT, 92I/10W 250
JT, 92P/14W, 93A/3W 178
JT, 50° 121° S.E., geochemical report 362
see also TN 266
JT (Mount Copeland mine area), 51° 118° S.E., 50° 118° N.E., geological and geochemical reports 365
Jubilee Mountain area 300
JUDY, 92I/7W, 10W 258
JUDY, 93N/2E 107
geophysical and geochemical reports 371
JUGS, 92I/2W 272
JUMBO, 92F/4E 217
Jumbo Mines Ltd., COPPER KING, IMPERIAL, 82K/8W 343
geophysical report 356
JUNE, 82G/11W 348
JUNE, 82M/13W 230
JUNE, 92L/6W 207
geophysical report 363
JUNE, 114P/9W 28
JUNEAU, 92F/9W 214
Jupiter Explorations Ltd., MAC, 104I/11E 43

K

K, 82F/14E 333
K, 92B/5E 225
K, 92I/11E, 11W 258
KAC, 104I/2W 47
geochemical report 373
Kahlert, B. 101, 113, 114
KAINS, 102I/8E 206
geological and geochemical report 365
Kains Point area 206
Kaiser Resources Ltd. 410
MICHEL COLLIERY, 49° 114° N.W. 411
by-product plant 419
coal-preparation plants 418, 419
construction division 418
open pits 414
prospecting and exploration 416
underground operations 411
KAL, 82L/14E 239
geophysical report 357
KALAPPA, 92F/4W 217
Kako Valley Mines Ltd.—
ILK, ELK, FRI, PR, 92H/7E 288
JEAN, LUX, FORGE, 92I/10W 255
line-cutting 359
Kal Resources Ltd., J, 92I/9W 237
KAM, 92I/11E 264
geophysical report 361
Kamad Silver Co. Ltd., HOMESTAKE, 82M/4W 234
Kam-Kotia Mines Limited—
SILMONAC, 82F/14W 328
VICTOR, 82F/14W 328
KAMLOOPS, 92I/15E, 10E 239
geophysical reports 358, 359
Kamloops area 234
Kamloops Mining Division—
metals 228
silica 405
Kangro, M. 267
KAPPA, 92K/3W 212
KAREN, 93L/9E 118
KAS, 92O/2E, 2W 186
KAS, 92L/3W 215
geological and geochemical report 364

Kaslo River area 332
KAT, 82K/3E 332
geochemical report 356
KATANGA, 92G/10E 194
Katanga Mines Ltd., WT, 104I/7E 49
KATE, 82F/14W 326
KAY, 82F/4W 315
geological, geophysical, and geochemical report and line-cutting 350
KAY, 103P/3W 69
geochemical report 372
KAY, 104I/5W 45
KAYE, 92L/12W, 102I/9E 201
geophysical report 363
Kaza Copper Limited, FIRE, 93M/16W 108
KB, 92J/7E, 7W 188
KC, 82E/12W, 13W 293
Kechika Mines Ltd., OX, 92H/7E 289
geophysical report 354
Keefe, R. 115
Keen Creek area 333
Keevil Mining Group Limited 163
Kehlechoa River area 46
Kel-Glen Mines Ltd., VERA, DIA, 92I/11E 267
KELLY, 103I/8E 78
KELLY, 50° 121° N.E., geophysical and geochemical reports 362
Kelsey Bay area 209
Kelso Explorations Ltd., BEA, GIANT, SWEDE, 92H/5E, 6W 198
geophysical and geochemical reports 355
Keltic Mining Corporation Ltd., MAPLE BAY, 103O/8E 59
KEMESS, 94E/2E, 2W 104
KEN, 82M/5E 233
geological and geophysical reports 366
KEN, 92H/16W 280
geophysical report 353
KEN, 93K/3E 152
geological and geochemical report 369
KEN, 50° 127° N.E., geochemical report 364
KEN (KEF GROUP), 50° 127° N.E., geochemical report 364

PAGE
Kennco Explorations, (Western) Limited—
  ATTYCELLEY, 94E/2E 103
    geochemical report 372
  CHAPPELLE, 94E/6E 103
    geochemical report 373
  HARMON, 94E/11E 102
    geophysical and geochemical reports 373
  KEMESS, 94E/2E, 2W 104
  PILLAR, 94E/2W 103
    geochemical reports 372
  PINE, 94E/2E 103
    geological and geochemical reports 372
  RAY, 93L/1W 149
  SAM, 93L/1W 150
  SG (SAM GOOSLY), 93L/1E, 1W 142
  SILVER QUEEN, 93L/2W, 2E 126
  XENOS, 94E/7W 102
    geochemical report 373
Kennedy River area 219
Kennedy Silver Mines Ltd., BOUNTY, EXPO, 92G/10E 195
Kent Municipality, Department of Highways, sand and gravel 401
Keremeos area 297
Kerr, F. P. 348
Kerr, John 380
Kerr Addison Mines Ltd., BOOM, WILF, 93D/16W, 93E/1W 161
Kettle River area 303
KEVIN, 92L/8E 210
KEY, 92I/6E 258
  geophysical report 362
KEY, 104N/11W 29
KF, 93C/3W 162
KG, 93L/1W 149
KG, 93L/1W 150
KID, 93K/7W 120
  geological and geochemical report 369
KID, 1041/9E 48
Kierans, M. D. 189
Kikuchi, T. 86, 91, 106
KIM, 82G/12W 346
  geophysical reports 349
KIM, 92O/2W 186
KIM, 93G/1W 161
KIM, 93N/2E 107
Kim, T. Y. 231
KIMBERLEY, 92I/9W 236
Kimberley area 345
Kimberley Copper Mines Ltd., EVENING STAR, GOLDEN STAR, 92I/9W 235
Kimura, E. T. 120, 152, 153
Kinaskan Lake area 45
Kindrat, Paul 100
Kindrat Mines Ltd., CRONIN MINE, 93L/15W 100
  production, *see* Table 12 427
KING, 93L/3W 151
  geochemical report 368
KING, 104I/5W 45
King Graybarr Mines Ltd., DCK, 82L/6E 298
  geophysical report 357
  production, *see* Table 12 429
King Midas Mines Ltd., LEXINGTON, 82E/2E 308
King Resources Company—
  CHATAWAY, 50° 120° S.W., geological report 357
  FOG, 82K/7W 336
  MOUNT COPELAND MINE, 82M/1W 338
  Mount Copeland mine area, geological and geochemical reports 365
  STAN, ROCKLAND, 82E/2E 306
    geochemical report 351

PAGE
KING WILLIAM, 92I/8W 275
KIP, 92H/16E 278
  geochemical report 354
KIRBY, 92B/5W 225
KIRK, 59° 129° S.E., geophysical report 374
Kirk, E. 228
Kirkpatrick Sand and Gravel Ltd., sand and gravel 401
Kitimat area—
  metals 72
  sand and gravel 400
Kitimat Copper Co. Ltd.—
  SEEL, AB, 92F/9W 213
  VERN, WIN, 92F/9W 214
Kitimat Range area 76
Kitkatlah gravel pit 400
Kitsul Bros. Gravel Sales Ltd., sand and gravel 402
KL, 92I/15E, 10E 238
  geological, geophysical, and geochemical reports 359
Kleanza Creek area 82
Kleanza Mines Ltd.—
  CROESUS, 103I/9W 77
    line-cutting 370
  HOPE SILVER, 103I/15W 70
KLEIV, 92O/9W 182
  geophysical and geochemical reports 367
Kleman, J. A. 426
Kleman, J. S. 426
Klessner, Mr. 375
Klinaklini River area 189
Knapp, J. 292
Knauer, J. D. 196
Knight Inlet Resources Limited, CATHERINE (previously CAMBRIA COPPER), building-stone 385, 386
KNOX, 82M/1W 338
Koerner, W. 205
KOERNER, 92L/11E, 11W 205
KOFIT, 93M/1W 113
  geological, geophysical, and geochemical reports 371
Kokanee Contracting Limited, DAHL LAKE QUARRY, limestone 393
KOM, 92H/16E 278
  geochemical report 354
KOOTENAY STAR, 82K/3E 332
Koporok Mines Ltd.—
  CACHE, 82E/13W 293
    geophysical report 351
  GLAD, 82E/12W 293
    geophysical report 351
KOPR, 49° 119° S.W., geophysical report 352
Korski, J. 416
KR (EHOLT GROUP), 49° 118° S.W., geochemical report 351
  see also STAN, ROCKLAND 306
KRAIN, 92I/10W, 11E 259
  geochemical report 359
KRAIN COPPER, 92I/10W, 11E 259
Krase, H. J. 428
KRC Operators Ltd., MOUNT COPELAND MINE, 82M/1W 338
Kreft, Erwin 28
KR & K, 92I/7W 259
  geophysical report 359
Krysko, Emil 41
KS, 93N/6W, 11W 105
KW, 92L/12W 202
  geological and geochemical report 364
Kwanika Creek area 105
KYU, 92L/3W 215
Kyuquot Sound area 215
Kyuquot Syndicate 215

L

L, 92L/6W 207
Lacerte, Rosario J. 395
Lac la Hache area 178, 183
LAD, 93L/16E, 93M/1E 114
LADY, 93L/9W, 10E 120
LADY LUCK, 94K/6W 50
LADY OF THE LAKE, 82E/2E 304
  geological report 350
LAF, 93K/8E 157
LAKE, 92E/8W, 9W 216

Page
LAKE, 92I/6E 259
LAKE, 92I/15E, 10E 239
Lake Kozak Mines Limited, SUNSET, 82F/4W 316
LAMBDA, 92K/3W 212
Lammle, C. A. 175
Lamont, G. L. 41
LANA, 93L/9W 119
LANCASTER, 82K/16W 341
Lancaster, G. 418
Lane, D. M. 420
Lane, H. A. 429
Lane, W. E. 334, 429
Lang, J. B. C. 339
Lang Bay, sand and gravel 403
Langley Municipality, sand and gravel 402
La Prairie, J. 156
Larch Mining Ltd.—
  BOSUN, 82F/14W 327
  GALENA FARM, 82F/14W 326
  WASHINGTON, 82K/3E 330
Lardeau area 335
Laredo Limestone Ltd. 390
Largo Mines Ltd.—
  BIN, 92I/6E 249
  HIGH, 92I/10W 254
  KIP (SLIM), 92H/16E 278
   geochemical report 354
  KOM, 92H/16E 278
   geochemical report 354
  LADY LUCK, 94K/6W 50
  MIKE, BOB, 92L/6E 209
   geophysical and geochemical report 363
  MO, 92G/8E, 9E 195
   geophysical report 335
LARK, 92I/7W 264
La Roche, Mr. 375
Larose, T. 162
LA ROSE, 103P/12E 63
Lasqueti Island area 214
LAST CHANCE, 82E/2E 306
  geological and geophysical report and line-cutting 351
LAST CHANCE, 92I/9W 236
LAST CHANCE, 93M/4E 85
LATE, 92I/11E 267
LATE, 104P/3W 43
LATE, 49° 119° S.E., geophysical and geochemical report 351
Lathrop, S. 219
Lauer, R. M. 345
LAURA, 104B/1E 57
Laura Mines Limited—
  DIK, 50° 127° N.W., geochemical report 363
  WJ, 92I/10W 268
LAVA, 93L/11E 86
  geological, geophysical, and geochemical reports 370
Lawrence, E. A. 319
Lawrie, J. 410, 411
LAYOVER, 82E/2E, *see* THE LAYOVER 309
LB, 82K/12E 340
LB, 93L/7W 122
LC 1, 104K/7E 37
  geological report 374
LC 2, 104K/7W 37
  geological, geophysical, and geochemical report 374
LD, 92I/6E 257
  geological, geophysical, and geochemical reports 361, 362
LD 1 FRACTION, 92I/6E 266
LE, 92I/10W, 11E 253
  geophysical reports 359
LEA, 103I/9E 79
LEAD KING, 93M/6W 99
LEADVILLE, 82F/1W 322
  production, *see* Table 12 427
LEE, 92I/7W 270
  geophysical and geochemical reports 358
LEE, 92I/15W 240
LEE, 103P/6W 68
LEE, 49° 120° S.E., geochemical report 354

Page
Lee, F. 182
Legate Creek area 83
LEI, 82F/14W 328
  geochemical report 350
LEIF, 92O/2W 185
LELA, 93B/8E 175
LEM, 92H/10E, 15E 278
LEMON No. 7, 92H/7E 288
LEMON No. 9, 92H/7E 288
LENORA, 92B/13W 224
  geophysical report 349
LEO, 82G/11W 348
LEONE, 82F/8E 347
LE ROI, 82F/4W 314
LES, 92I/15W 240
  geochemical report 359
LEW, 82L/10W 298
LEXICON, 82E/2E 308
Lexington Mines Ltd., LEXINGTON, 82E/2E 308
  geophysical report 350
LF, 92I/6E 250
L. G. Scott and Sons Construction Ltd., sand and gravel 400
LH, 92G/11E 193
L & H Swanson Ltd., sand and gravel 403
Liard Copper Mines Ltd., SNO, BIRD (LIARD COPPER), 104G/7W 46
Liard Mining Division—
  asbestos 379
  metals 40
  placer 375
Liard River, placer 375
Liberty Mines Ltd., McALLISTER, 82K/3E 330
Lightning Creek, placer 376
Lightning Peak area 300
Likely area 175
LIL, 92I/10W 266
LILI FRACTION, 93L/2W, 2E 126
LILLIAN, 104P/4W 41
Lillooet Mining Division—
  asbestos 380
  metals 185
  placer 376
limestone 389–398
LIMONITE, 92O/3W 181
LINDA, 82E/2E 304
  geochemical report 350
LINDA, 93L/16E, 93M/1E 114
Lindale Copper Mines Ltd.—
  CAT, CYPRUS, 92F/4W, 5W 217
  HESQUIAT, SATCHIE, BROWN JUG, 92E/8W, 9W 216
Lindstein, O. A. 429
LINK, 92O/2W 185
Lisle, T. E. 211, 225
Liss, T. P. 246
LITTLE DALLAS, 49° 118° S.W., geophysical report 350
  see also TAM O SHANTER 307
LITTLE ELI, 49° 120° S.E., geophysical and geochemical report 352
Little Fort area 231
LITTLE JOE, 103P/13W 57
LITTLE TIM, 82F/14W 324
  production, *see* Table 12 429
LITTLE WONDER, 93M/4E 85
Livingstone, K. W. 268
LIZ B, 82F/2E 322
  geophysical report 349
LJ, 92G/10E 194
LL, 94D/15E 104
LLC, 57° 132° N.E., geological report 373
LLOYD, 82E/5E, 6W 294
  line-cutting 351
LMR, 92H/7W 290
  geochemical report 354
LO, 92I/7E, 7W 269
LOBO, 82L/11W 240
LOIS, 94K/11W 51

Page
LOIS, 49° 118° S.W., geological and geochemical report 350
see also G-TO 304
LOLI, 94K/6W 50
LOLO 1, 82L/14E, silica 405, 406
LONDON, 82K/16W 341
LONDON, 92J/2W 192
LONDON, 92K/3W 211
London Pride Silver Mines Ltd., PRIDE, SID, RAM, 92I/2W 273
LONE TREE, 92I/9W 236
Lonrho Exploration Limited, COPPER HILL, COLLEEN, 92K/3W 212
LOON, 92P/9W 231
LOON, 93G/16E 160
geophysical and geochemical report 368
LOON, 104N/12W 36
LOREX, 50° 121° S.E., geophysical and geochemical report 362
LORI, 92L/12W, 102I/9E 201
LORI, 103P/6W 64
Lori Explorations Ltd., ESPERANZA, ALICE, 103P/6W 64
LORNA, 92I/6E 260
LORNA DOONE, 82F/14W 326
LORNE, 93K/11W 120
Lornex Mining Corporation Ltd.—
GA, 92I/7W 253
LORNEX, 92I/6E 260
NIM, 92I/11E 262
TAM, KAM, JAC, RAF, 92I/11E 265
VERA, DIA, 92I/11E 267
LOST, 82E/2E 307
line-cutting 351
LOST, 93E/14W 92
Lost Creek area 320
LOT, 50° 127° N.W., line-cutting 365
Lotze, A. K. 327
LOU, 82E/7W 303
geochemical report 351
LOU, 92H/15E 276
LOU, 93L/13E 80
line-cutting 370
LOU, 103I/15W 71
LOU, 54° 126° N.E., geochemical report 369
Louis Salvador & Sons, sand and gravel 404

Page
LOYAL CANADIAN, 82E/1W 309
LTK, 92I/6E 259
LUCKY, 82F/4W 315
LUCKY, 92L/12W, 102I/9E 201
LUCKY, 92P/9W 231
LUCKY, 93L/9W, 10E 120
LUCKY BOY, 82F/3W 317
LUCKY BOY, 82K/12E 340
LUCKY DAWN, 93A/5E 176
geochemical report 368
LUCKY JIM, 92K/3W 211
LUCKY JIM, 103I/9E 82
LUCKY SEVEN, 103P/13W 57
LUCKY SHOT, 104P/5E 42
LUCKY STRIKE, 92I/16W 235
LUCKY STRIKE, 92L/10E 190
LUCKY STRIKE, 92J/15W, 92O/2W 185
LUCKY STRIKE, 92P/9W 231
Lucky Strike Mines Ltd., OPULENCE, ROYAL BANNER, SS, 49° 119° S.W., geological, geophysical, and geochemical reports 351
LUCY, 93L/2W, 2E 126
LUK, 92L/12E 202
geophysical report 364
LUK, 93M/7E 113
LUKY, 93L/7E 122
LUNA, 104P/6W 42
LUNAR, 114P/10E 28
LUX, 92I/10W 255
LV, 93L/7E, 10E 121
LX, 92C/15E 221
geophysical report 349
LYBDENUM, 93L/7W 122
LYDIA, 82M/12W 230
LYNN, 82F/4W 316
LYNN, 92I/7W 264
LYNX, 49° 119° S.E., geophysical and geochemical report 351
LYNX MINE, 92F/12E 218
production, *see* Table 12 426
Lyon, H. B. 428
Lytton area 241
Lytton Minerals Limited—
MOSS, 104I/4W, 5W 44
ROCKY, TOM, NAV, 92I/6W 242

Mc and Mac

MAC, 82E/5E 294
MAC, 92H/7E 283
geophysical report 354
MAC, 92P/14E 184
geochemical report 367
MAC, 94K/11W 50
MAC, 104I/11E 43
MAC, 50° 121° S.E., geochemical report 362
MacAndrew, John M. 196
Macauley, T. N. 284
MacDonald Consultants Ltd., BRIAN, ADD, 55° 126° N.W., geophysical report 371
MACEX, 103I/15W 71
geophysical report 370
MacLeod, J. W. 217
MacMillan Bloedel Ltd., TIE, SUSAN, 92L/11W 208
Macrae, Rod 74
McAdam, W. 423
McALLISTER, 82K/3E 330
McAndrew, J. M. 74, 162
McAndrew, J. W. 177
McArthur, W. E. 306
McArthur and Son, No. 7, 82E/2E 308
McBean, R. 270, 358
McBELL, 50° 125° S.W., line-cutting 363
McBride, D. 71
McCammon, J. W., reports by, FUKI, 82E/10W 302
see also Structural Materials and Industrial Minerals section 379

McConnell Range area 104
McCreight Lake area 211
McDiarmid, J. M. 320
McDougall, J. J. 213
McGauley Ready-Mix Concrete Company, sand and gravel 404
McHale, K. B. 206
McIntosh Sand and Gravel Limited 401
McIntyre Porcupine Mines Limited—
CAT, CYPRUS, 92F/4W, 5W 217
HATTIE, 82F/6W 318
JAN, HI, 92I/6E 255
geophysical and geochemical report 361
McKee Creek, placer 375
McLean, D. 375
McLean, Roderick W. 351
McLeese Lake area 162
McLellan, G. 429
McLellan, John 347
McLellan, S. L. 334
McLeod, James 311
McLeod, W. H. 330
McMillan, J. W., reports by, *see* Highland Valley area 242
McNEIL, 103I/8E 78
McPhee, J. 267
McQuillan, T. J. 429

M

PAGE
M, 92I/14W 241
M, 92L/12E 203
MAB LAKE, 92I/7E 271
MABEL, 92H/16W 280
Mabel Lake area 298
MACK, 104J/8W 44
MACO, 92I/6W 241
Macsan Explorations Ltd., SOOKE COPPER, 92B/5E 225
MAD, 92P/16W 231
MAD, 93M/14W 101
MAD ARAB, 92I/7E, 7W 270
  geophysical and geochemical report 360
MAD MAJOR, 92O/3W 181
Madeisky, Hans E. 80
MADISON, 82F/14E 329
Madison, John 335
MAE, 92I/7W 256
  geophysical report 359
MAE, 93L/2W, 2E 126
Maestretti, T. 69
MAG, 82K/7W, *see* BRUCE 335
MAG, 92H/11E 277
MAG, 93A/3E 177
  geophysical report 367
MAG, 93L/7W 122
MAG, 103I/16E, 16W 83
MAG, 50° 115° N.W., geological report 356
MAG, 52° 122° N.W., geochemical report 368
Magee, J. B. 218
MAGGIE MINE, 92I/14W 241
  geological report 362
MAGNET, 83D/12W 228
  geophysical report 367
MAGNET, 58° 132° N.E., geophysical report 374
MAGNETIC, 92L/6E 208
  geophysical report 364
Magnetron Mining Ltd.—
  JACKAL, 103I/16E 84
  MAG, 103I/16E, 16W 83
  NIILO, 103I/16W 84
  REGA, 103I/16E 83
    geophysical report 370
MAGNUM, 94K/11W 50
MAGNUS, 92H/15E 276
Magog Mining Co. Ltd., TOPAZ, 82F/2W 321
  geophysical report 349
Mahatta River area 206
Major Mines Ltd., TAC, SNO, 50° 121° N.E., line-cutting 362
MAKAOO, 92I/10E 235
MAKELSTIN, 50° 120° S.W., geophysical and geochemical report 359
MAL, 49° 120° N.E., geophysical report and line-cutting 354
  see also TOE, BOOT, MALACHITE 277
MALACHITE, 92H/16W 277
  line-cutting 354
Malcolm, D. C. 203
Malibu Metals Ltd., N, TEXAS, 92J/7E, 10E 189
Malloy Creek Uranium, 82K/15W 377
Mamit Lake Mining Ltd., LEE, 92I/7W 270
  geophysical and geochemical reports 358
MANCHESTER, 82K/16W 341
MANITOU, 92O/2W 185
MAPLE BAY, 103O/8E 59
Maple Bay area 59
Maple Bay Copper Mines Limited, MAPLE BAY, ANACONDA, COMSTOCK, PRINCESS ALEXANDRIA, 103O/8E 59
MAPLE LEAF, 92G/10E 194
Maple Ridge Municipality, sand and gravel 401
MAR FRACTION, 92I/2W 273
MARB, 92I/2W, 3E 272
  geophysical report 359
Marc Explorations Ltd., NS, NSZ, MIKE, 93N/3E, 6E 106

PAGE
MARG, 94D/1W 102
MARG FRACTION, 93L/2W, 2E 126
MARGARET, 82F/10W 334
MARIE, 82E/3E 303
  geophysical and geochemical report 352
MARIE, 92O/2W 185
MARIE, 92O/9W 182
  geophysical report 367
Marietta Resources Company Ltd., MT. WASHINGTON COPPER, 92F/11E, 11W, 14W 213
MARINER C, 93A/11W 176
Marko, H. 77
marl 398
Marlow, Alan 340
MARMOT, 93L/11E 86
  geological report 370
MARMOT, 94D/15E 104
MARQUIS OF LORNE, 92H/7E 288
  geochemical report 354
MARS, 92F/9W 214
MARS, 92I/6E 260
MARS, 92I/10W 266
MARS, 92I/11E 260
MARSHALL, 82E/2E 305
Marshall, K. G. 429
MARTY, 51° 119° S.W., geophysical report 366
MARY, 82M/13W 230
MARY, 92J/15W, 92O/2W 185
MARY, 93L/2W, 2E 126
MARY G, 92H/5E, 6W 197
MASTODON, 82E/1E 311
Mastodon-Highland Bell Mines Ltd.—
  HIGHLAND BELL MINE, 82E/6E 301
    production, *see* Table 12 426
  LOU, 93L/13E 80
    line-cutting 370
MAT, 92I/6E 260
Matheson, V. 429
Matsqui Municipality, sand and gravel 402
Mattison and Patterson Ltd., sand and gravel 404
Mattson, A. V. 375
Mattson, Mr. 375
Maus Creek Placer, 82G/12E 377
Maus Minerals Ltd., placer 378
Maverick Mountain Resources Limited, SAM, 93L/1W 150
MAX, 82M/4W 234
MAX, 92I/10W, 11E 261
MAX, 92I/10W 266
MAX, 93B/9W 174
MAX, 104B/7E 54
  geophysical report 372
MAXO, 92I/10W, 11E 261
MAY, 82N/4W 339
MAY, 92I/11E 263
MAY, 92L/12W, 102I/9E 201
  geophysical report 363
MAY, 93A/12E 175
MAY, 58° 129° S.W., geochemical report 374
MAY FLOWER, 82F/4W 315
MAYNARD, 92L/6E 208
  geophysical report 364
Mazur, A. 325
MB, 92I/6E 258
  geophysical report 362
MC, 92I/6E 257
ME, 94K/11W 50
MEARES, 92F/4W, 5W 217
Medesto Exploration Ltd.—
  ADR, 82K/15W 342
  phosphate 399
  RAD, 82K/8W 343
Meikle, J. 256, 359
MEL, 82F/4W 315
  geological, geophysical, and geochemical report and line-cutting 350
MEL, 92I/6E 261
  geochemical report 362

PAGE
MELODY, 82K/8W 343
 geophysical report 356
Melvin Hinkel and Associates, OTTO SILVER, 82F/1W 322
Memphis Creek area 325
Menzies Bay area 211
MER, 92I/11E 264
 geophysical report 361
MERC, 92I/15W 240
 geological and geochemical reports 359, 360
MERCURY, 92O/2W 185
Mercury Explorations Limited—
 BONUS, 93K/3E 152
  geophysical report 369
 CHESS, 93K/3E 152
  geophysical report 369
 DAISY, 82G/5W 346
  geophysical report 349
 SPA, SKAT, SKU, ALTA, geophysical report 360
 see also 264
Merrell, H. D. 274
Merritt area 270
Merseren, T. G. 319
MERT, 54° 126° N.W., geochemical report 369
Mess Creek area 46
MET, 93L/9E, 16E 115
Meteor Mining Co. Ltd., M, 92L/12E 203
Meyer, K. V. S. 156
MG, 93N/6W, 11W 105
MIC, 93L/7E 121
MICHEL COLLIERY, 49° 114° N.W. 411
MICHIGAN, 92H/7E 288
 line-cutting 354
MICK, 93M/1W 114
Midland Construction Co. Ltd., sand and gravel 404
MIDNIGHT, 82F/4W 314
MIDNIGHT, 93L/14E 85
Midnight Consolidated Mines Ltd., BJ, JP, BARB, 93B/8E 175
 geophysical report 368
MIDWAY, 82E/2W 304
 production, *see* Table 12 426
Midway area 303
MIKE, 92I/10W 250
MIKE, 92L/6E 209
 geophysical and geochemical reports 363
MIKE, 92L/11E 209
 geophysical and geochemical report 364
MIKE, 93G/1W 161
MIKE, 93N/3E, 6E 106
MILDRED, 114P/9W 28
MILL, 92H/5E, 6W 197
 geophysical report 355
 see also BEA, GIANT, SWEDE 197
Millican, J. A. 304, 350
MILLIE MACK, 82K/4E 323
 production, *see* Table 12 429
MILLS, 92O/2W 186
Minette Bay Rock Quarry, sand and gravel 400
Minex Development Ltd., AM, IDE, VM, 92I/7W 244
MINNIE, 82K/15W 342
MINNIEHAHA, 82F/14W 328
MINO, 103F/8E 72
 geochemical reports 369
MINT, 92I/2E 274
Miocene area 176
Mission Municipality, sand and gravel 401
Mitchell, J. A. 178
MIX, 92H/15E 276
 geophysical report 353
MJ, 92H/7W 290
 geochemical report 354
M & K, 103I/9E 83
MK, 93E/11W 98
ML, 92O/10W 182
MM, 93C/6W 74
 geophysical report 368
MM, 92I/10W, 11E 261
MM, 92I/7W 264

PAGE
M & M, 103I/9E 83
MN, 92E/1E, 92F/4W 217
 geological and geochemical report 355
MO, 92G/8E, 9E 195
 geophysical report 355
MO, 92I/7W 264
MO, 92P/9W 231
MO, 103I/9W 77
MOCKING BIRD, 82F/4W 315
MOHAWK, 92O/3W 181
Mokta (Canada) Ltee., ZYM, 103I/8E 78
MOLLIE, 82F/14E 329
Mollie Mac Mines Ltd., JONN, BRENNAN, 92I/6E 257
MOLLY, 82F/16W 344
MOLLY B, 92I/3W 242
MOLY, 82E/1E 311
 geophysical report 350
MOLY, 103P/6W 69
Molymine Explorations Ltd., ED, 93L/7E 121
Moly-Win Mining Ltd., LITTLE TIM, 82F/14W 324
MOM, 92L/12W 201
 geological and geochemical report 365
MOM-RAIN, 104P/6W 41
MONEY, 92H/7E 288
 line-cutting 354
MONEY, 104H/12W 45
MONEY MAKER, 103I/8E 78
MONTANA, 103I/9E 79
Monte Cristo Mines Limited, SS, JE, JT, 92P/14W, 93A/3W 178
 geophysical and geochemical report 367
Montgomery, G. H. 292
Montgomery, J. 223
Montreal Trust Co. Ltd., SILVER QUEEN, 104P/5W 41
MOON, 92F/6E 219
MOON CREEK ASBESTOS, 92J/16E 380
MOONSHINE, 82K/2W 335
Moore, D. 304, 426
Moore, D. L. 371
MOOSE, 92P/9W 231
MOOSE, 93B/9W 174
MOR, 50° 127° N.W., geological and geochemical report 364
Moresby Island area 73
 sand and gravel 400
Morgan, D. R. 191
Morice Lake area 151
MORICETOWN SILVER, 93M/3W 99
Morocco Mines Ltd., BREN, SUMMIT, 52° 122° N.E., geophysical report 368
Morris, H. C. 345
Morrison, L. G. 240
Morrison-Knudsen Company Inc. 420
MOS, 104P/5W 40
 geophysical report 374
MOSS, 104I/4W, 5W 44
MOTHER LODE, 82E/2E 307
MOUNT COPELAND MINE, 82M/1W 338
Mount Rose Mining Co. Ltd., IVAN (MOUNT ROSE SILICA) 406
Mount Sicker Mines Ltd., LENORA, TYEE, RICHARD III, 92B/13W 224
 geophysical report 349
MT. VIEW, 82E/1E 310
 geophysical report 351
Mt. Washington Copper Co. Ltd.—
 AB, 92C/16W 222
 MT. WASHINGTON COPPER, 92F/11E, 11W, 14W 212, 213
MOUNTAIN DAISEY, 82K/16W 341
MOUNTAINEER, 103I/9E 79
Mountain Minerals Limited—
 barite 382, 383
 clay and shale 387
MOUSE, 50° 120° S.W., geological and geophysical report 360

PAGE
Moyes-Wann, A. 288, 354
Moyie area 346
Moyie River, placer 377
MR, 94D/15E 104
M3 FRACTION, 93L/2W, 2E 126
MU, 92K/3W 212
MUD, 92I/12W 242
Mudflat Creek, placer 375
MUIR, 94C/11E 109

PAGE
Multiple Mining Ltd.—
  GREENACRES, 82F/10W 334
  PEN, AXE, JOE, 82E/4E 298
    geophysical report 352
Munro, P. L. 73
Murphy, J. B. 416
Murrell, M. R. 421
Mustard, D. K. 184
M & W Sand and Gravel Ltd. 403

N

N, 92J/7E, 10E 189
NABS, 104G/7W 46
NAC, 92H/7E 283
  geophysical report 354
Nadina Explorations Limited, SILVER QUEEN (NADINA), 93L/2W, 2E 126
NADIRA, 92C/15E 221
NAK, 93M/8E 112
Nanaimo Mining Division, metals 200
NANCY, 82E/2W 304
NANCY, 92I/12W 242
Nanika Lake area 92
Nass Ranges area 76
Nass River area 69
Nass River Mines Limited, KAY, 103P/3W 70
Nassichuk, P. 403
NAT, 92C/15E 221
  geophysical report 349
NAT, 92I/7W 253
NAT, 93F/4W 154
Nation Lakes area 106
National Nickel Company Limited, TASEKO, SPOKANE, EMPRESS, MOHAWK, 92O/3W 181
NATIVE, 103I/8E 78
Native Mines Limited, ZYM, 103I/8E 78
NAV, 92I/6W 241
N.B.C. Syndicate—
  FAR, 93N/2W 107
    geophysical report and line-cutting 371
  HAT, 93K/16W 156
    geophysical report 369
  HI, 93N/3E 107
    geological, geophysical, and geochemical report 371
  TP, 93G/8E, 9E 160
    geophysical and geochemical report 368
Nechako Plateau area 110
NED, 92I/10E 238
Negas Mining and Exploration Ltd., ED, 50° 119° N.E., line-cutting 357
Negro Creek, placer 377
NEL, 92I/11E 261
  geological and geochemical report 362
Nelson area 316
  sand and gravel 404
Nelson Creek Mining Co. Ltd., placer 376
Nelson Creek Placer, 93H/4E 376
Nelson Mining Division 316
nephrite—*see* jade 389
Neroutsos Inlet area, 92L/5E 206
Nesbitt, B. I. 246, 248
Nesbitt, John 328, 429
Nesikep Creek area 242
Nethery, R. J. 274
NEV, 92H/7E 288
NEW ARLINGTON, 82F/3W 318
  production, *see* Table 12 427
New Cinch Uranium Ltd., COPPER CANYON, EAGLE, SOS, 92I/3E 273
New Cronin Babine Mines Limited, CRONIN MINE, 93L/15W 100
New Gold Star Mines Ltd.—
  GOLD STAR, 103I/9W 76
    geological report 370
  LOU, 103I/15W 71
New Indian Mines Ltd.—
  EDEN, EZRA, JOB, CL, 92I/10W 252
    geophysical reports 358
  NIM, 92I/11E 262
    line-cutting 362
New Jersey Zinc Exploration Company Canada Ltd., LONDON, AXE, 92J/2W 192
New Method Placers Ltd. 376
NEW MID, 92F/9W 214
NEW PHOENIX FRACTION, 82F/14W 323
NEW STRIKE, 92F/9W 214
New Wellington Mines Limited, MARMOT, THORNE, 94D/15E 104
New Westminster Mining Division 194
NEW ZONE, 92F/9W 214
Newconex Canadian Exploration Ltd.—
  MAY, 58° 129° S.W., geochemical report 374
  ROONEY, 92L/8E 209
    geochemical report 363
  WR, 92K/4W 211
NEWMAN, 93L/16E, 93M/1E 114
Newmine Development Ltd., JUDY, 92I/7W, 10W 258
Newmont Mining Corporation of Canada Limited—
  COPPER CREEK MERCURY PROPERTY, 50° 120° N.W., geological and geochemical report 357
  COPPER MOUNTAIN MINE, 92H/7E 284
  COPPER No. 2, 82E/9W 310
    geological report (BEAR, DOE) 350
  IXL, 82E/9W 310
  KOERNER, SAUCE, 92L/11E, 11W 205
  KYU, 92L/3W 215
  STAR, 92L/5E 206
NF, 93L/14E 85
NI, 92H/7E 288
NI, 104N/11W 29
NIC, 92F/16W 190
  geochemical report 355
NIC, 50° 120° S.W., line-cutting 360
NICKEL PLATE, 82F/4W 314
Nicola Copper Mines Ltd., KR & K, 92I/7W 259
  geophysical report 359
Nicola Lake Mining Co. Ltd., MOUSE, TIP, 50° 120° S.W., geological and geophysical report 360
Nicola Mining Division 269
Nicola-Princeton Inspection District 421
Nicolet, J. P. 78
Nielson, P. 59
NIGHT OWL, 82L/4E 299
  geochemical report 357
NIK, 92H/5W 195
NIM, 92I/11E 262
  line-cutting 362
NIN, 82L/16W 339
NIP, 103I/9W 81
Nissho-Iwai Canada Ltd., FUKI, 82E/10W 302
NIT, 92C/15E 221
  geophysical report 349
NIT, 93F/15W 154
Nithi Mountain area 154
Nitinat River area 221
Nittetsu Mining Co. Ltd., CROESUS, 103I/9W 78
NO, 93L/9W, 10E 120
NOD, 92P/16W 231
Noel, G. A. 206
Noland mine, placer 375

PAGE

- NOMAD, 58° 132° N.E., geophysical report 374
- Noman Creek, 55° 121° N.W., coal 423
- NOONDAY, 93M/6W 99
- NOR, 92L/11E 208
- NORA (MOUNT COPELAND MINE AREA), 51° 118° S.E., geological report 365
- Noranda Exploration Company, Limited—
  - ALPHA, 93M/8W 112
    - geophysical and geochemical report 371
  - ANDY, PAK, 92F/2E 220
  - AXE, 92H/7E 287
    - geophysical report 352
  - AZURE, 92J/2W 192
  - BABE, 93M/7E 113
    - geophysical report 371
  - BETH, 93M/8W 112
    - geophysical and geochemical report 371
  - BIN, 92I/6E 248
    - geochemical report 361
  - COKE, 92I/7E 271
  - DA, 93M/8E 112
  - DANSEY, 92I/10W 250
    - geochemical reports 358
  - DUSTY MAC, 82E/5E 294
  - EIN, 82L/6W 239
  - ELK, 92J/3E 192
  - EMPRESS, 92H/5E, 5W 195
    - geophysical and geochemical report 355
  - ETTA, PEG, JUGS, 92I/2W 272
    - geophysical report 358
  - GO, DO, LE, 92I/10W, 11E 253
    - geophysical reports 359
  - GOOF, SUE, 82M/12W 229
  - ILK, ELK, FRI, PR, 92H/7E 288
    - geochemical report 354
  - JACK, 92I/11E 255
    - geophysical report 361
  - KRAIN, 92I/10W, 11E 259
    - geochemical report 359
  - LOON, 93G/16E 160
    - geophysical and geochemical report 368
  - LUCKY, LADY, PEHU, 93L/9W, 10E 121
  - MAG, 92H/11E 277
  - NEWMAN, 93L/16E, 93M/1E 114
  - NIC, 92F/16W 190
    - geochemical report 355
  - RANCHER, PEPSI, OUT, 92I/1W 276
    - geophysical report 360
  - ROCK, 93L/6E 92
  - TACHI, 93L/9E, 16E 115
- Norcross, D. 317, 427
- NORM, 92I/10W, 11E 261
- NORM, 92K/3W 211
  - geochemical report 363
- Norranco Mining & Refining Co. Ltd.—
  - BAT, TAB, 92H/15E 276
  - HALO, 92H/15E 276
    - geophysical report 353
- NORSK, 104N/12E, 12W 37
- NORTH, 93L/11E 86
- North Canadian Oils Limited, MELODY, 82K/8W 343
  - geophysical report 356
- NORTH HALE, 92I/7W 264
- North Lardeau area 339
- NORTH LIGHT, 82K/8W 343
  - geophysical report 356
- North Pacific Mines Ltd.—
  - DANSEY, 92I/10W 250
  - JACK, 92I/11E 255
  - KRAIN, 92I/10W, 11E 259
- NORTH STAR, 82E/5W 297
- NORTH STAR, 82F/4W 315
- NORTH STAR, 92F/9W 214
- NORTH STAR, 92I/15E, 10E 239
- NORTH STAR, 103P/12E 60
- Northern Coal Mines Limited 422
- Northern Inspection District 422
- NORTHERN LIGHT, 104B/1E 56
- Northern Lights Minerals Ltd., CONDUCTOR, 82F/14W 329
- NORTHERN QUEEN, 59° 129° S.W., geophysical report 374
  - *see also* SILVER QUEEN 41
- Northgate Exploration Ltd., SILVER QUEEN, 93L/2W, 2E 126
- NORTHISLE, 82K/16W, barite 383
- Northlode Explorations Ltd., LOREX, 50° 121° S.E., geophysical and geochemical report 362
- Northstar Copper Mines Ltd.—
  - FRED, BOBO, MARG (NORTHSTAR), 94D/1W 102
  - GAV, SLOPE, 93N/11E 106
- Northwestern Midland Development Co. Ltd., SILVER STANDARD MINE, 93M/5E 99
  - production, *see* Table 12 428
- NOV, 104G/7W 46
- NOVA, 50° 119° S.E., geochemical report 357
- NRM, 103F/8W 73
  - geophysical report 369
- NS, 93N/3E, 6E 106
- NSZ, 93N/3E, 6E 106
- NU, 93K/3E 153
- Nukka, Oscar 59
- No. 1, 82E/1W 309
- No. 7, 82E/2E 308
- No. 3 SEAM OPEN PIT, MICHEL COLLIERY, 49° 114° N.W. 414
- No. 7 SEAM OPEN PIT, MICHEL COLLIERY, 49° 114° N.W. 414
- No. 10 SEAM, MICHEL COLLIERY, 49° 114° N.W.—
  - 4 OPEN PIT 416
  - 4A OPEN PIT 416
  - 6 OPEN PIT 416
  - 7 OPEN PIT 416
- NW, 92I/1W 274
- NW, 92O/3W 181
- NWB, 93L/1E, 1W 150

O

- OB, 92H/9W, 16W 279
- Observatory Inlet area 59
- OC, 92H/9W, 16W 279
- OC, 92J/7E, 7W 188
- Occatilla Exploration Co. Ltd., BUTCHER BOY, 82E/2E 307
- Ocean Cement Limited—
  - B.C. Cement Division—
    - cement (Bamberton) 386
    - limestone (Cobble Hill) 396
  - Cassidy No. 4 pit, sand and gravel 404
  - Gilley Quarry (Pitt River), granite 385
  - Highland pit, sand and gravel 402
  - Hillbank Shale Quarry 388
  - Mary Hill, sand and gravel 401
  - Sandhill, sand and gravel 400
- O'CLANCY, 92L/6W 207
  - geophysical report 363
- OCS, 92J/7E, 7W 188
- OD, 92H/9W, 16W 279
- OGM, 92C/15E 221
- OGM, 92C/15E, 16W 221
- Ogura, Y. 421
- OHM, 92F/9W 214
- OK, 92I/15E, 10E 239
- OK, 92H/7W 290
- OK, 92I/6E 262
- OK, 92I/7E, 7W 270
  - geophysical and geochemical report 360
- Okanagan Falls area 294
- Okanagan Lake area 299
- Okanagan Landing Granite Quarry, 82L/3W 384

PAGE
OL, 92J/7E, 7W 188
OL, 93L/2W, 2E 126
OLD, 82E/4E 298
OLD ALAMEADA, 92I/7E 270
OLD BILL, 92F/9W 214
OLD COMPLEX, 92I/7E 270
OLD IRONSIDES, 82E/2E 305
Old Ironsides deposit, 82E/2E 305
OLD AND RARE, 92O/3W 181
OLD SPORT MINE, 92L/6E 207
  production, *see* Table 12 427
OLD TOM, 93L/11E 86
  geological report 370
OLE, 50° 117° S.E., geochemical report 356
  see also HECLA 332
OLGA, 92L/6W 207
OLS, 92J/7E, 7W 188
Olson, D. H. 154, 155, 189
OMEGA, 104N/12E 28
Omineca Mining Division—
  metals 76
  placer 375
Omineca Mountain area 102
Ominicetla Creek area 108
Onucki, Frank 364
OPAL, 92I/10W 266
OPHER, 82K/3E 332
OPULENCE, 49° 119° S.W., geological, geophysical, and geochemical reports 351
OREGON, 92H/7E 288
  line-cutting 354
ORMOND, 92E/8E 216
ORO, 92I/7W 264
ORO DENORO, 82E/2E 306

PAGE
Oro Mines Ltd., ACB, PRICE, CN, 92I/7W 242
Ortega Minerals Ltd., CROESUS, JOHANNESBURG, 82E/2E 308
  geophysical report 350
OS, 92I/7E, 7W 269
Osilinka River area 105
Osoyoos area 298
Osoyoos Mining Division 291
Ostensoe, E. A. 56
OTTAWA, 82F/14W 324
  production, *see* Table 12 429
OTTER, 82F/3E 320
OTTER, 92B/5E, 5W 225
OTTO SILVER, 82F/1W 322
OUT, 92I/1W 275
  geophysical report 360
Overstall, R. 119
Overton, C. W. 246
OVP, 93E/11W 98
  geological, geophysical, and geochemical report 368
OVP, 93N/6W, 11W 105
Owen Lake area, geology of 122
Owen Lake Mining & Development Co. Limited, SILVER QUEEN, 93L/2W, 2E 126
Owens, K. 258
OWL, 92J/7E, 7W 188
OWL, 93F/15W 154
OWL, 93L/2W, 2E 126
OX, 92H/7E 289
  geophysical report 354
OX, 92P/16W 230
OX, 93E/11E 93
OX LAKE PROPERTY, 93E/11E 93

P

P, 92H/5E, 6W 198
PA, 82M/12W 229
PACIFIC, 104N/11W 29
Pacific Coal Limited 421
Pacific Petroleums Ltd., ALLIE, 93L/12W 79
Pacific Silica Limited 407, 408
PACKRAT, 82E/2E 304
Padgham, W. A. 212
PAE, 104P/5W 40
Page, B. 28
Pageant Mines Ltd., EDIE, 49° 120° N.E., line-cutting 353
PAK, 92F/2E 219
PAL, 82E/4E 298
PAL, 92I/6E 262
PAL, 50° 127° N.E., geochemical report 364
Palenkas, P. 185
PAM, 50° 127° N.E., geochemical report 364
PAM (KEF GROUP), 50° 127° N.E., geochemical report 364
Pamicon Developments Ltd., OTTAWA, 82F/14W 324
  production, *see* Table 12 429
PAN, 93B/9W 173
PAN, 103I/8E 78
PANAMA, 82K/3E 331
PANE, 82E/15W 300
Panoil Canadian Minerals Associates, STANDARD, 82F/14W 327
  production, *see* Table 12 429
Panther Mines Ltd., KG, 93L/1W 149
PAPEX, 49° 119° S.W., geophysical report 352
PAQUET, 92I/2W 272
  geophysical report 358
PARAMOUNT, 92F/12E 218
Paramount Mining Ltd., SNO, BIRD, 104G/7W 46
PARK, 93L/2E 142
Parker, E. R. 193
PARSON BARITE, 82N/2E 382
PAT, 82M/12W 229
PAT, 92H/5E, 6W 197
PAT, 50° 121° N.E., geochemical report 362
PAT, 50° 127° N.W., geochemical report 364
Pathfinder Uranium & Nickel Mines Ltd.—
  DEM, 92L/11W, 12E 205
    geological, geophysical, and geochemical report 363
  PRICE, 92I/7W 263
    geophysical and geochemical reports 360
PATRICIA, 103P/6W 69
PATTI, 92I/7E, 7W 269
PATTY M, 82F/6W 318
PAUL, 92J/15W 185
Paulson, P. O. 41
PAY, 104I/3E 47
PAYCHEX, 49° 119° S.W., geophysical report 352
Payco Mines Ltd., placer 376
PC, 92P/9W 231
  geophysical report 366
P.D. Mines Limited, HAR, EXPO, 92L/11W 205
PEACH, 92P/14W 183
  geochemical report 367
Peachland area 293
PEAK, 82E/15E, 16W 300
  geological and geochemical report 351
Pearce, D. 427
PEARCE No. 3, 92H/7E 288
  line-cutting 354
PEARCE No. 4 FRACTION, 92H/7E 288
  line-cutting 354
Pechiney Development Limited—
  MARS, 92I/11E 260
  TROJAN, 92I/10W 266
Pedley, S. J. 208
Peel Resources Limited, TOM, 92I/1W 273
PEER, 82E/1E 310
PEERLESS, 92L/6W 207
PEERLESS REVISED, 82F/14W 326
PEG, 92I/2W 272
  geophysical report 358
PEHU, 93L/°W, 10E 120
Pelletier, John D. 29
Pelly Copper Corporation Ltd., HC, CM, 104I/2W, 3E 47
  geological report and line-cutting 373
Pemberton area 188

PAGE
PEN, 82E/4E 298
geophysical report 352
PEN, 92I/6E, 7W 244
PEN, 92J/7E, 10E 189
Pengelly, W. 428
Penner, G. J. 84
Penney, C. T. 69
PENNY (KEF GROUP), 50° 127° N.E., geochemical report 364
Pentland, A. G. 59
PEPSI, 92I/1W 275
geophysical report 360
Perepolkin, E. 328, 429
PERFECT DAY, 92O/3W 181
Pero, M. T. 396
Perry Creek Mines Ltd., CURLETT, 82F/3E, 3W 317
Perry River area 337
PET, 92H/16W 280
geophysical report and line-cutting 353
PET, 93B/9W 174
PET, 104I/3E 47
PETE, 51° 119° S.W., geophysical and geochemical reports 366
PETER, 104K/7E 37
geological report 374
Petersen, E. H. 328, 429
Petrina, A. J. 271
Pezim, Murray 363, 364
PG, 93L/5E 91
PH, 82G/7E, phosphate 399
Phelps Dodge Corporation of Canada, Limited—
BIN, 92I/6E 249
HIGH, 92I/10W 254
KAY, 103P/3W 69, 70
geochemical report 372
P. Heppner & Son, sand and gravel 401
Phillips Petroleum Company, KIMBERLEY, 92I/9W 236
Philp, R. H. D. 176, 201, 217
PHOENIX, 82F/4W 315
PHOENIX MINE, 82E/2E 305
production, *see* Table 12 426
Pho, Frank 327
phosphate 398
PI, 93L/3W 151
Piccolo, Luigi 375
PICK, 92H/7E 289
Picklands Mather & Company 421
Pighin, D. L. 377
PIL, 104G/7W 46
PIL, 57° 126° S.W., geological report 372
Pilcher, S. 231
PILGRIM, 92L/6W 207
PILLAR, 94E/2W 103
geological, geophysical, and geochemical reports 372
PIN, 92I/9W 237
geochemical report 357
PINCHI LAKE MINE, 93K/9W 156
production, *see* Table 12 428
PINE, 92H/10E 278
geochemical report 354
PINE, 93A/12E 175
PINE, 93L/3W 151
geochemical report 368
PINE, 94C/3E 105
PINE, 94E/2E 103
geological and geochemical reports 372
PINE, 94E/8E 109
Pine Creek, placer 375
Pine Creek Coal Ltd. 422
Pine Glacier Mines Ltd., EMERALD GLACIER MINE, 93E/11W 92
Pine Lake Mining Co. Ltd., OWL, OC, KB, 92J/7E, 7W 188
Pinnacle Mines Ltd., C, PIN, A, CLE, 50° 120° N.E., geochemical report 357
see also C, PIN, ART 237
PIP, 82E/4E 297
Pisani, P. 229
PIT, 92P/14W 183

PAGE
Pitt Lake area 194
Pitt River Quarries Ltd., PITT RIVER QUARRY, 92G/2E, building-stone 385
PJ, 93N/3E 107
PLACER-MINING LEASES 270 to 284, geophysical reports 356
PLACER-MINING LEASES 303 to 307, 309 to 314, 354 to 357 377
geophysical and geochemical reports 356
Placid Oil Company, BIG BONANZA, 82G/11W 348
MAY, 92I/11E 263
Plateau Metals Ltd.—
AXEL, MAX, JIB, 93B/9W 174
ART, 54° 124° S.W., 53° 124° N.E., geophysical report 369
PLUG, 50° 127° N.W., geological and geochemical report 364
PLUS, 50° 121° S.E., N.E., geophysical report 362
POLLEY, 93A/12E 175
POLLY, 92C/9W 222
POLLYANNA, 93B/9W 173
POMEROY, 92K/3W 212
PONTIAC, production, *see* Table 12 429
POOR PROPERTY, 82F/4W 315
POP, 82E/13W, 82L/4W 300
Porcher Island, sand and gravel 400
PORCUPINE CREEK, 82F/6E, building-stone 384
Porcupine River area 46
Port Alberni area 219
Port Hardy-Coal Harbour area 200
PORT HOPE, 82F/14W 323
Port McNeill area 208
Porter, R. M. 420
PORTER IDAHO, 103P/13W 58
Portland Canal area 54
POT, 92I/10E 237
Powell River area—
metals 190
sand and gravel 403
Power Reactor and Nuclear Fuel Development Corporation, FUKI, 82E/10W 302
geological and geophysical report 350
Poznikoff, M. 324
PR, 92H/7E 288
Pratt, M. E. 204
PRE, 82G/13E 344
Premier Mining Corporation Ltd., MILDRED, ICE, ACE, 114P/9W 28
Premier Sand and Gravel Company Limited 404
Prentice W. R. 419
PRESIDENT, 82K/7W 336
Preto, V. A. G., reports by, COPPER MOUNTAIN MINE, 92H/7E 283
PRICE, 92F/5E, 12E 219
PRICE, 92F/12E 218
PRICE, 92I/7W 242
PRICE, 92I/7W 253
PRICE, 92I/7W 263
geophysical and geochemical reports 360
PRIDE, 92I/2W 273
PRIDE OF EMORY MINE, 92H/6W 196
production, *see* Table 12 427
Primer Group Minerals Ltd.—
LA ROSE, SPECULATOR No. 2, BUNKER HILL, 103P/12E 63
OD, OB, OC, 92H/9W, 16W 279
PRINCE, 54° 126° N.E., line-cutting 370
PRINCESS ALEXANDRIA, 103O/8E 59
Princeton area 282
PRO, 92B/5E 225
PROSPERITY, 103P/13W 58
PT, 94D/15E 104
PUFF, 92H/5E, 6W 197
PUFF, 93L/9W, 10E 120
PUERTO RICO, production, *see* Table 12 427
Purcell Development Co. Ltd., SILVER BASIN, 82K/10W 342
PW, 92E/8E, 92F/5W 216
P & W Development Co. Ltd., sand and gravel 403
Pyper, R. 284

PAGE

- Pyramid Mining Co. Ltd.—
  - BURG, 93B/9E 174
  - KEY, MB, 92I/6E 258
    - geophysical report 362
- PYRITE, 92I/11E 263
- PYRRHOTITE, 104I/7W 49
  - geophysical report 374
- PYTHON, 92I/10E 235

Q

- QC, 104G/9W, 16W 45
- QCA, 104G/9W, 16W 45
- Quadling, H. 401
- Quadra Bell Mining Co. Ltd., COPPER BELL, 92K/3W 212
- Quadra Island area 211
- Quality Exploration Corporation, TOP, FIX, 92H/16W (*see also* MABEL) 280
  - geophysical reports and line-cutting 353
- QUARTZ SILVER, 103I/10W 71
- Quatsino Copper-Gold Mines Ltd., MAGNETIC, MAYNARD, IRON, 92L/6E 208
  - geophysical report 364
- Quatsino Sound area 206
- Quebec Cartier Mining Co.—
  - GARNET, 57° 126° S.W., geological report 372
  - PILLAR, 57° 126° S.W., geological, geophysical, and geochemical report 372
  - RIGA, 57° 126° S.W., geological report 373
  - SPARTAN, 57° 126° S.W., 57° 127° S.E., geological and geochemical report 373
- QUEEN, 93L/3W 151
  - geochemical report 368
- Queen Charlotte Islands area 72
- Quintana Minerals Corporation—
  - AVALLIN, 92C/15E, 16W 221
  - CS, 102I/9E, 16E, 16W 200
    - geological and geochemical report 365

R

- R, 92K/6E, 7W 190
- RA, 82G/7E, phosphate 399
- Racing River area 50
- RAD, 82K/8W 343
- RADIO, 82M/12W 229
- RAF, 92I/11E 264
- RAIN, 104P/6W 41
- RAINBOW, 92I/9W 236
- RAINY, 92L/6E 208
- RAISE, 92I/1W 275
- RAJ, 93N/2E 107
- RALPH, 82F/6W, *see* RAND 319
- RAM, 92H/15E 276
  - geophysical report 353
- RAM, 92I/2W 273
- RAM, 104I/9E 48
- RAM, 104P/3W 42
- RAM, 51° 119° S.W., geophysical and geochemical report 366
- Rama Mining & Development Limited, COLORADO, 82F/14W 325
- Ramani, S. V. 175, 226
- RAMBLER, 82E/6E 301
- Ramshead Quarries Ltd.—
  - building-stone 384
  - limestone 397
- RAN, 51° 119° S.W., line-cutting 366
  - *see also* BEX 233
- RANCHER, 92I/1W 275
  - geophysical report 360
- RAND, 82F/6W 319
- RANJO, 51° 119° S.W., geophysical and geochemical reports 366
- RAT, 57° 126° S.W., geological and geochemical report 372
- Raw Materials Ventures Inc., VENT, 92F/3W 219
  - geological and geochemical report 355
- RAY, 82E/3E 303
  - geophysical and geochemical report 352
- RAY, 82M/12W 229
- RAY, 92H/7E 283
- RAY, 92I/15W 240
- RAY, 93L/1W 148
- RAY, 104P/5W 40
  - geophysical report 374
- Rayfield Mining Co. Ltd., JOE, GI, 51° 121° S.E., geophysical report 367
- Raymond Gold and Silver Ltd., HOMESTAKE, production, *see* Table 12 429
- Rayore Mines Ltd.—
  - COLLEEN, 82E/2E 308
  - RAY, 82E/3E 303
    - geophysical and geochemical report 352
- RB, 93L/5E 91
- RC, 92I/6E 263
- RD, 92C/9E 223
- REA, 93E/11E 97
- REB, 92I/7E 271
- RECO, 82F/14E 329
- Reco Silver Mines Limited, RECO, BLUEBIRD, 82F/14E 329
- RED, 92F/6E 219
- RED, 93A/12E 176
- RED, 93L/9E 119
- RED, 94D/9W 104
  - geological and geochemical report 372
- Red Deer Valley Coal Company Limited—
  - BOSUN, 82F/14W 327
  - GALENA FARM, 82F/14W 326
  - WASHINGTON, 82K/3E 330
    - production, *see* Table 12 429
- RED EAGLE, 92J/16W 188
- Red Metal Mines Ltd., PORT HOPE, 82F/14W 323
- Red Mountain Mines Limited, COXEY MINE, 82F/4W 314
  - production, *see* Table 12 429
- RED ROCK, 93A/12E 175
- Red Rock Mines Ltd., ROCCO PLATA, VAN, 82E/6E 302
  - geochemical report 352
- RED STAR, 92H/2E 290
- Redford, L. R. 178
- Rees, Oscar W. 402
- Reese, R. 175
- Reeves MacDonald Mines Limited—
  - ANNEX, 82F/3W 321, 322
  - REEVES MACDONALD MINE, 82F/3W 329
    - production, *see* Table 12 427
- REG, 92H/10E 278
  - geochemical report 354
- REGA, 103I/16E 83
  - geophysical report 370
- REGAL SILVER, 82N/4W 339
- Reininger, R. M. 371
- RELAY, 92O/2W 185
- REM, 82M/5W 233
- Remac area 320
- RENNING, 82M/5E 233
  - geological and geophysical report 366
- Retallack-Three Forks area 330
- review, coal mining and exploration 409
  - metals 19
- Revelstoke area 338
- Revelstoke Mining Division 337
- REX, 92H/9E 294
  - geophysical report 354
- REX, 93B/8E 175

PAGE

- REX, 103I/9E 79
- REXSPAR, 82M/12W 229
  - geophysical and geochemical reports and line-cutting 366
- RH, 92E/8E, 92F/5W 216
- RH, 92L/5E 206
- RH, 92O/3W 181
  - geochemical report 367
- RIB, 92K/3W 211
- RICH, 82F/4W 315
  - geophysical report and line-cutting 350
- RICHARD III, 92B/13W 224
  - geophysical report 349
- Richardson, P. W. 210, 211
- Richmix Clay Products Limited 387
- Richwood Silver Mines Ltd., MILLIE MACK, 82K/4E 323
  - production, *see* Table 12 429
- RICK, 92L/12W, 102I/9E 201
  - geophysical report 363
- RICKHILL, 92I/12W 242
  - geophysical report 362
- RICKY, 92J/15W, 92O/2W 185
- RIDGE, 94C/3E 105
- RIGA, 57° 126° S.W., geological report 373
- RIGHT BOWER, 82K/2W 335
- Riley, Christopher 174
- RIM, 92F/11W 213
  - geophysical report 355
- Rio Algom Mines Limited, LORNEX, 92I/6E 260
- Rio Pacific Industries Ltd. (Aggregates Division), sand and gravel 402
- Rio Tinto Canadian Exploration Limited—
  - B, 93G/3W 161
  - C, 2, 93F/7E, 8W 155
  - LUCKY STRIKE, G, 92L/10E 190
  - MACEX, 103I/15W 71
    - geophysical report 370
  - PAUL, 92J/15W 185
  - R, WAPO, 92K/6E, 7W 190
  - T, CAP, TUT, 93F/3E, 3W, 6E, 6W 155
- Riondel area 337
- RIP, 82M/2E 337
- Rip Van Mining Ltd.—
  - CAM, DOC, 92L/1E, 8E 210
  - DEL, LOU, 54° 126° N.E., geophysical and geochemical reports 369
  - EWE, 104I/9E 49
  - HOUSTON, 93N/11W 105
  - LOU, 82E/7W 303
    - geochemical report 351
  - RIP, 82M/2E 337
  - SECHART (BALMORAL), 92C/14E, 14W 220
  - RITA, 82E/3E 303
    - geophysical and geochemical report 352
- Riviera Mines Limited, HAR, EXPO, 92L/11W 205
- RM, 92I/10W 250
  - geochemical report 360
- RM, 104G/4E 46
  - geophysical report 373
- RO, 51° 120° N.E., N.W., geophysical report 367
- ROADBLOCK, 92H/10E 279
  - geochemical report 354
- ROB, 82E/7W 302
- ROB, 92C/15E 221
- ROB, 92I/7W 264
- ROB, 103I/9W 76
- ROB, 51° 119° S.W., geological, geophysical, and geochemical reports 366
- ROB FRACTIONS, 92C/15E 221
- ROBIN, 94C/3E 105
- Robinson, M. C. 329
- ROBSON, 92J/15W, 92O/2W 185
- ROCCO PLATA, 82E/6E 302
  - geochemical report 352
- Rocher Déboulé Range area 85
- ROCK, 93L/6E 91
- Rock Creek area 303
- ROCKLAND, 82E/2E 306
- ROCKY, 92I/6W 241
- ROD, 93L/7E 122

PAGE

- RODERICK DHU, 82E/2E 304
  - geological report 350
- Roed, M. A. 43
- ROGERS, 92K/12W, building-stone 385
- Rolling Hills Copper Mines Limited—
  - ED, 92I/11E 251
    - geophysical report 361
  - MAKAOO, 92I/10E 235
- RONDA, 92H/9E 294
  - geophysical report 354
- ROONEY, 92L/8E 209
  - geochemical report 363
- Roosevelt Mines Ltd., APEX, CANDY, 51° 122° S.W., geological and geochemical report 367
- ROSE, 92I/16W 234
- Rose, G. 188
- Rose Pass Mines Ltd., HUMBOLT, 82F/10E 337
- ROSS, 92O/2W 185
- Rossland area 314
- Rossland Mining Co. Ltd., BLUEBIRD, PHOENIX, 82F/4W 315
- ROSSO, 92H/16W 280
  - geophysical report 353
- Rothman, S. M. 345
- ROUNDY, 103P/6W 68
- ROUNDY CREEK, 103P/6W 68
- Rover Mines Ltd., MT. VIEW, PEER, 82E/1E 310, 311
  - geophysical report 351
- ROWSE FRACTION, 82K/3E 330
- ROY, 92I/15W 240
- ROYAL, 92I/6E 263
- ROYAL BANNER, 49° 119° S.W., geological, geophysical, and geochemical reports 351
- Royal Canadian Ventures Ltd.—
  - DL, 92I/8E 275
    - geological, geophysical, and geochemical report 358
  - EBL, 82M/5W 233
  - FG, 92P/14E 184
    - geophysical report 367
  - FH, 82M/12W 230
    - geochemical report 366
  - FS, SAGE, OK, 92I/15E, 10E 239
    - geophysical reports 358, 359
  - IM, 92I/9W 236
    - geophysical and geochemical report 359
  - KL, 92I/15E, 10E 238
    - geophysical and geochemical reports 359
  - MAG, 93A/3E 177
    - geophysical report 367
  - ML, 92O/10W 183
  - ROYAL, CANA, RC, 92I/6E 263
  - SL, 51° 121° N.E., geological, geophysical, and geochemical report 367
  - WIT, WAG, 93N/1W 108
- ROYAL EDWARD, 92J/2W 192
- RS, 92I/7E, 7W 269
- RT, 93N/2E 107
- RU, 104N/11W 29
- RUB, 92P/9W 231
- RUBE, 93L/7E 121
- RUBY, 82E/1E 311
  - geophysical report 350
- RUBY, 92I/7W 263
  - geophysical and geochemical reports 360
- RUFFNER, 104N/12E 28
- RUM, 104G/7W 46
- RUPERT, 92L/11W 204
- Rupert Cement Products (1965) Ltd., sand and gravel 400
- RUSH, 92L/12W, 102I/9E 201
- RUSS, 93A/12E 175
- RUSTY, 92I/12W 242
- RUSTY, 104P/4W 41
- RUTH, 82K/15W 342
- RUTH VERMONT, 82K/15W 342
- RW, 92C/9W, 10E 222
- RW, 92E/8E, 92F/5W 216
- Ryslo Silver Mines Ltd., SEATTLE, 82E/1W 310
  - geological, geophysical, and geochemical report 351

S

PAGE

- Sabre Bulldozing Ltd., sand and gravel 403
- Sadlier-Brown, T. L. 279
- SAGE, 92I/15E, 10E 239
  - geophysical reports 358, 359
- Sager, W. 402
- SAINT, 103I/8E 78
- ST. ANTHONY, 92F/9W 214
- St. Eugene Mining Corporation Limited, placer 377
- ST. JOSEPH, 92F/9W 214
  - geological, geophysical, and geochemical reports 355
- St. Mary River area 346
- St. Mary's Mines Ltd., WARHORSE, 82F/9E 346
- Salem Mines Ltd., RICH, MEL, KAY, ELI, 82F/4W 315
  - geological, geophysical, and geochemical reports and line-cutting 350
- Salk, Mike 235
- SALLY, 104N/12E, 12W 37
- Salmo area—
  - metals 317
  - sand and gravel 404
- SALMON, 82K/16W, barite 383
- Salter, J. H. 345
- Salvation Mines Ltd.—
  - ARANY, EMILE, 92H/5W 195
  - TIN, CAN, 92H/4E 196
- SAM, 82E/2E 307
- SAM, 93K/3E 152
- SAM, 93L/1W 150
- SAM GOOSLY, 93L/1E, 1W 142
- SAMSON, 93J/1W 160
- San Jacinto Explorations Limited, MARSHALL, 82E/2E 305
- SAN JOSE, 92I/6E, 7W 242
- sand and gravel, *see* Table 400 404
- Sandifer Lake area 76
- Sandon area 327
- Sarage, R. B. 429
- Sarco Investments Ltd., SKYLARK, LAST CHANCE, 82E/2E 306
  - geological and geophysical report and line-cutting 351
- SATCHIE, 92E/8W, 9W 216
- SATURDAY, 92I/7E, 7W 269
- SAUCE, 92L/11E, 11W 205
- Savage, T. 325
- Savanna Creek Gas & Oil Limited, MERC, 92I/15W 240
  - geological and geochemical reports 360
- Savona area 240
- SAW, 92H/7E 289
- Sawyer, D. 106
- SAXON, 92K/3W 211
- SB, 92I/10W 266
- SC, 93L/5E 91
- Schmidt, A. J. 110
- Schuler, C. E. 402
- Scott, D. 195
- Scott, J. S. 188
- SCOUT, 93L/11E 86
- SCRANTON, 82F/14E 333
  - production, *see* Table 12 429
- Scurry-Rainbow Oil Limited—
  - coal 420
  - JILL, TOW, JJJ, 92H/7E 287
  - SUMMIT, 82M/13W 230
- SEATTLE, 82E/1W 309
  - geological, geophysical, and geochemical report 351
- SEC, 104I/3E 47
- SECHART, 92C/14E, 14W 220
- SECOND RELIEF, 82F/6W 319
- Secondo Mining Ltd.—
  - BIRMOLY, 82M/5W 232
    - geophysical report 366
  - LUK, 92L/12E 202
    - geophysical report 364
  - TAP, PENNY, DON, PAM, KEN (KEF GROUP), 50° 127° N.E., geochemical report 364

PAGE

- SEEL, 92F/9W 213
  - geochemical report 355
- Seigel and Associates 41, 59
- Senate Mining and Exploration Limited, HECLA, 82K/3E 332
  - geochemical report 356
- SET, 93E/14W 92
- SEVEN SISTERS, 103I/16W 84
- Seven Sisters Mining Ltd., JACKAL, 103I/16E 84
- Seven Sisters Peak area 83
- SEVEN UP, 92P/9W 231
- Sevensma, P. H. 38, 40, 49
- 70 Mile House area 184
- SEYMOUR, 93L/14E 85
- SG, 93L/1E, 1W 142
- SHA, 103I/9W 81
- SHANNON, 49° 120° S.E., geophysical and geochemical report 352
- SHARON, 92I/12W 242
- Sharp, W. M. 195, 224
- Shasta Mines & Oils Ltd., GOLCONDA, 103I/9W 81
- SHAW, 92P/1W 232
- Shawinigan Mining and Smelting Company Limited, KAY, 103P/3W 70
- Sheba Copper Mines Limited, SHEBA, 92I/7W 264
- SHEEP CREEK, 82F/3E, building-stone 384
- SHEL, 93M/14E 101
  - geological and geochemical report 371
- Sheldon, R. 205, 206, 215
- Sheppard, E. P. 224
- SHERRY, 54° 127° S.E., geological, geophysical, and geochemical report 370
- Sheslay River area 38
- SHINNICK FRACTION, 92F/4W 217
- SHIRLEY, 93A/12E 175
- Shulman, I. 205
- SHUR, 49° 118° S.W., geochemical report 350
  - *see also* LINDA, BG 304
- SHUSWAP, 51° 118° S.W., geophysical report 365
- Shuswap Lake area 239
- SIBLEY, 82E/2E 308
- Sicintine Mines Limited—
  - COB, ICE, JAN, MAD, 93M/14W 101
  - ICE, 93M/14W 101
    - geochemical report 371
  - FOG, 93M/14W 100
- Sicintine Range area 101
- SID, 82E/12W, 13W 293
- SID, 92I/2W 273
- Sieger, Mr. 375
- Sieling, R. 411, 413
- Sierra Empire Mines Ltd., SET, LOST, ICE, 93E/14W 92
- Silbak Premier Mines Limited, SILBAK PREMIER MINE, 104B/1E 56
- Sileurian Chieftain Mining Company Limited—
  - ESPERANZA, ALICE, 103P/6W 64
  - ROUNDY CREEK, 103P/6W 68
- silica—
  - FS No. 1 and No. 2, 82L/13W 405
  - HOPEFUL, 82L/14E 405
  - IVAN (MOUNT ROSE SILICA), 82L/6W 406
  - OLIVER SILICA QUARRY, 82E/4E 407
- Silmonac Mines Ltd., SILMONAC, 82F/14W 328
- SILVER, 82K/10W 342
- SILVER, 92O/9W 182
  - geophysical and geochemical reports 367
- SILVER, 94C/3E 105
- SILVER, 49° 121° N.E., geological and geochemical report 355
- SILVER BASIN, 82K/10W 342
- SILVER BELL, 82F/14W 327
  - production, *see* Table 12 429
- SILVER BOW, 103P/13W 58
- Silver Butte Mines Ltd., TIGER, 103P/11W, 12E 60

Page
Silver Chalice Mines, COWBOY, TEXAS, FOURTH OF JULY, 82K/3E 331
  production, *see* Table 12 429
SILVER CROWN, 104A/4W 57
SILVER CUP, 82K/11W 341
Silver Dawn Mines Ltd., SILVER CUP, 82K/11W 341
Silver Dollar Mines Ltd., SILVER DOLLAR, 82F/3W 317
  production, *see* Table 12 427
Silver Dome Mines Limited, TAM O SHANTER, 82E/2W 307
  geophysical report 350
SILVER HOARD, 82F/10W 333
  production, *see* Table 12 429
SILVER KING, 82K/8W 343
SILVER KING, 82K/16W 341
SILVER KING, 93L/2W, 2E 126
Silver-Lee Mines Limited, WELLINGTON, 82E/6E 302
SILVER No. 1 FRACTION, 92H/7E 288
SILVER QUEEN, 93L/2W, 2E 126
SILVER QUEEN, 104P/5W 41
  geophysical report 374
SILVER QUICK MINE, 92O/2W 186
SILVER SPRAY, 82K/8W, *see* MELODY 343
SILVER STANDARD MINE, 93M/5E 98
  production, *see* Table 12 428
Silver Standard Mines Limited—
  ALPHA, BETA, HILLCREST, 92C/9E 223
  FLY, 93A/6E, 6W 177
  GRIT, 93L/11E 86
    geochemical report 370
  HU, 104J/8E 44
  OX, 93E/11E 93
  REB, 92I/7E 271
  SILVER STANDARD MINE, 93M/5E 99
    production, *see* Table 12 428
  TETRA (MORICETOWN SILVER), 93M/3W 100
Silver Star Mines Ltd., SCRANTON, 82F/14E 333
  production, *see* Table 12 429
SILVER STREAK, 82L/6E 298
SILVER TIP, 93L/2W, 2E 126
SILVER TIP, 93M/4E 85
Silver Tip Explorations Ltd.—
  GRANITE, SCHEELITE, 92H/7W 282
  SILVERTIP, 92H/7W 290
Silver-X International Mines Ltd.—
  KAC, 104I/2W 47
    geochemical report 373
  FIN, COP, 53° 121° S.W., geophysical report 368
SILVERADO, 103P/13W 58
Silverquick Development Co. (B.C.) Ltd., SILVERQUICK, 92O/2W 187
SILVERTIP, 92H/7W 290
  production, *see* Table 12 428
Silverton area 326
Similkameen Mining Company, Limited—
  COPPER MOUNTAIN, 92H/7E 284
  DEEP, DEN, 49° 120° S.W., geophysical and geochemical report 353
Similkameen Mining Division—
  metals 278
  placer 376
Similkameen River, placer 376
Singh, R. N. 70
Singhal, G. C. 308
Sinmax Mines Ltd.—
  CAS, SHANNON, LITTLE ELI, BIG ELI, 49° 120° S.E. 352
  MAX, HOPE, 82M/4W 234
  STAR, ROB, TOM, COUGAR, BOBCAT, 51° 119° S.W., geological, geophysical, and geochemical reports 366
SIRIUS, 92B/13E 224
Sirola, W. M. 277
Siwicky, E. 83
SK, 93N/2E 107
SK FRACTION, 92I/7W 264
Skagit River area 199

Page
SKAT, 92I/7W 264
  geophysical report 360
Skeena Mining Division 54
Skeena Mountain area 98
Skerl, A. C. 315
SKI, 104P/3E 43
  geophysical and geochemical report 374
SKI, 92H/7E 298
SKI, 49° 120° N.W., geophysical report 354
SKIDOO, 93M/1W 114
SKOMAC, production, *see* Table 12 426
SKOOKUM, production, *see* Table 12 429
Skookumchuk area 344
SKU, 92I/7W 264
  geophysical report 360
SKULL, 92P/14E 184
  geochemical report 367
SKYLARK, 82E/2E 306
  geological and geophysical report and line-cutting 351
SKYLINE, 82F/10W 334
  production, *see* Table 12 429
Skyline Explorations Ltd., OG, 104J/4E 38
  geological and geochemical report 374
SL, 92P/16W 231
SL, 93L/14E 85
SL, 51° 121° N.E., geological, geophysical, and geochemical report 367
SL, 54° 127° S.E., geological, geophysical, and geochemical report 370
SLIM, 92H/16E 278
  geochemical report 354
SLOCAN BOY, 82K/3E 330
Slocan Mining Division 323
Slocan Ottawa Mines Ltd., OTTAWA, 82F/14W 324
SLOCAN SOVEREIGN, 82F/14E 329
SLOPE, 93N/11E 106
Smellie, D. W. 332, 356
Smith, A. 76
Smith, C. 69
Smith, J. W. 246
Smith, W. H. 122
Smithers area 99, 110
SN, 92H/16W 280
SNO, 104G/7W 46
SNO, 104I/9E 48
SNO, 103I/9E 79
SNO, 50° 121° N.E., line-cutting 362
SNOW, 92I/7W 244
SNOW, 93L/1E, 1W 142
SNOW PEAK PROPERTY, 104J/8W 44
SNOWDROP, 82N/2E, barite 382
SNOWFLAKE, 82N/4W 339
SNOWSHOE, 93M/4E 85
SNOWSHOE, 103I/9E 79
SO, 51° 120° N.E., N.W., geophysical report 367
SOB, 92H/7E 289
  geophysical report 354
SOB, 92H/8W 289
  geophysical and geochemical report 354
SODA, 92P/14W 183
SOL, 104P/3W 43
SOM, 57° 127° S.E., geological and geochemical report 373
SONJA, 92P/9E 230
SOO, 82E/6W 296
  geophysical report 352
Sooke area 225
SOOKE COPPER, 92B/5E 225
Sorregaroli, A. E. 192
SOS, 92I/3E 273
Sostad, Ralph 347
South Oak Mines Ltd., DIXIE, 82K/4E 323
  line-cutting 356
South Seas Mining Limited—
  MARS, 92I/11E 260
  TROJAN, 92I/10W 266
SOUTHERN CROSS, 92C/15E 221

PAGE
Souvenir Mines Ltd., RENNING, GRIZZLY, CU, 82M/5E 233
geological and geophysical report 366
SOUX, 103I/9E 82
SPA, 92I/7W 264
geophysical report 360
Spacemaster Minerals Ltd., NAT, NIT, LX, 92C/15E 221
geophysical report 349
Sparkes, D. 398
Spannallen Mining Ltd., MARINER C, 93A/11W 176
Spark, 93M/1W, 8W 112
SPARTAN, 57° 126° S.W., 57° 127° S.E., geological and geochemical report 373
Spartan Explorations Ltd.—
AAA, 102I/9E 201
geological and geochemical reports 365
FORD, 104I/5W 45
geophysical report 374
LLC, 57° 132° N.E., geological report 373
WAY, 92I/10W 268
Specogna, Efrem 72
SPECULATOR No 2, 103P/12E 63
Spenho Mines Ltd., RED STAR, 92H/2E 290
SPIKE, 82E/13E 299
geophysical and geochemical report 352
Spallumcheen area 341
SPOKANE, 92O/3W 181
SPOKANE BLUE SKY, 92O/3W 181
SPOKANE ROSY DAWN, 92O/3W 181
SPOOK, 93L/2E 142
Springer Creek area 323
SPRUCE, 94C/3E 105
Spruce Creek, placer 375
SPUR, 92I/10E 238
Squamish area 192
Squamish Stone & Silica Co. Ltd.—
CHEAKAMUS BRIDGE, TERU, 92G/14E 192
VENUS, 92G/11E 194
SQUEEK, 93L/3W 151
SR, 93L/5E 91
SS, 92I/7E, 7W 269
SS, 92P/14W, 93A/3W 178
geophysical and geochemical report 367
SS, 49° 119° S.W., geological, geophysical, and geochemical reports 351
S & S Sand and Gravel Limited 400
Stafford, C. 73
Stampede Oils Ltd., JS, JR, GC, JT (Mount Copeland mine area), 51° 118° S.E., geological and geochemical reports 365
STAN, 82E/2E 306
geochemical report 351
STAN, 92P/14E 184
geochemical report 367
STANDARD, 82E/2E 307
STANDARD, 92F/14W 327
production, *see* Table 12 429
Standard-General Construction (International) Limited, sand and gravel 403
Stannex Minerals Ltd., STANNITE, 82N/4W 339
STANNITE, 82N/4W 339
STAR, 82F/1W 322
production, *see* Table 12 427
STAR, 82F/6W 316
STAR, 82L/10W 298
STAR, 92J/3E 191
STAR, 92K/3W 211
geochemical report 363
STAR, 92K/3W (*see* COPPER HILL, COLLEEN) 212
STAR, 104I/3E 46
STAR, 51° 119° S.W., geological, geophysical, and geochemical reports 366
Starbird Mines Ltd., LITTLE JOE, GYPSY, 103P/13W 57
Stave Lake area 195
Stellako Mining Co. Ltd., PRICE, 92I/7W 263
Stemwinder deposit, 82E/2E 305
STEVENSON, 82F/14W 326
Stevenson, R. W. 102, 104, 213, 219
Stewart area 56

PAGE
STEWART-WIKSTROM, *see* BIG MISSOURI 57
Stikine River area 46
Stirling, A. G. 345
Stokey, T. 416
Stoochnoff, John 317, 427
STP, 93G/16E 160
Street, P. 85
STRIKE, 92F/9W 214
geological, geophysical, and geochemical reports 355
STRIKE, 93L/7E 121
STROMBERG, 92F/9W 213
structural materials 379–408
Stump Lake area 275
SUE, 82M/12W 229
SUE, 104G/7W 46
SUE, 104I/3E 47
Sukunka River Project, 55° 121° S.W., coal 423
Sullivan, J. 310
SULLIVAN MINE, 82F/9E 345
production, *see* Table 12 426
SULTANA, 93M/4E 85
Sultana Silver Mines Limited, SILVER TIP (SULTANA), 93M/4E 85
Sumas Municipality, sand and gravel 401
Sumitomo Metal Mining Co. of Canada Ltd., PRIDE OF EMORY MINE, 92H/6W 197
Summerland area 294
Summers Creek area 278
SUMMIT, 82M/13W 230
SUMMIT, 93B/9W 173
geophysical report 368
SUMMIT, 93L/9W 119
Summit Oils Limited—
COLE, 93L/16W 110
DEV, 93L/1E 149
GARY, 93L/2E 141
GUY, 93L/14W 81
JIM, 93L/2W 142
JIM, GREEN, 93K/5E 151
JOE, 93L/6E 92
SPOOK, PARK, 93L/2E 142
SUMMIT, 93L/9W 119
SUMMIT-TASEKO, 82M/13W 230
SUN, 82F/1W 322
SUN, 92H/7E 289
geophysical report 354
SUNLOCH, 92C/8E 224
SUNNY CAVE, 92J/3E 191
SUNRISE, 92K/3W 211
SUNRISE, 93M/6W 99
SUNRISE No. 7, 93L/15W 100
Sunrise Silver Mines Ltd., SUNRISE, 93M/6W 99
Sunro Mines Ltd., SUNLOCH and GABBRO, 92C/8E 224
SUNSET, 82F/4W 316
SUNSET, 93B/9W 173
SUNSET, 93M/6W 99
SUNSHINE, 92I/7E, 7W 269
SUNSHINE, 103P/5W 59
Sun-West Minerals, Limited, FOREMOST, CLEAR CREEK, COPPER CREEK, 92F/4E 218
S.U.P. 5382 QUARRY, 92C/9E, building-stone 386
Surrey Municipality, sand and gravel 402
SUSAN, 92L/11W 208
line-cutting 365
Sutherland Brown, A., reports by—
ADERA, 104N/11W 29
OX LAKE, 93E/11E 93
Sutherland River area 120
Sveinson, M. G. 338
Swainson, P. R. 356
SWAMP, 93M/1W 114
Swan, H. 58
SWAN, 103P/13W 58
Swannell Ranges area 102
SWEDE, 92H/5E, 6W 197
geophysical report 355
Sweepstake Mines Ltd., VENUS, ST. JOSEPH, 92F/9W 214
geological, geophysical, and geochemical reports 355
Swim Lake Mines Ltd., WIZ, LOT, BELLE, 50° 127° N.W., line-cutting 365

T

PAGE

- T, 92B/5E ... 226
- T, 92H/7E ... 287
  - geophysical report ... 354
- T, 92I/6W ... 241
- T, 93F/3E, 3W, 6E, 6W ... 155
- T, 93L/1E, 1W ... 142
- T, 54° 128° S.E., geochemical report ... 370
- TA, 50° 127° N.W., geochemical report ... 363
- TAB, 92H/15E ... 276
- TAB, 92L/11W, 12E ... 204
- TAC, 50° 121° N.E., line-cutting ... 362
- TAC, 104P/5W ... 40
- TACHEK, 93L/9E, 16E ... 115
- TACHI, 93L/9E, 16E ... 115
- TAG, 82F/2E ... 322
  - geophysical report ... 349
- Tahtsa Lake area ... 92
- Tahtsa Ranges area ... 92
- TAIL, 104P/4W ... 41
- Tait, R. M. ... 109
- TAM, 92I/11E ... 264
- TAMMY, 92L/8E ... 210
- TAM O SHANTER, 82E/2W ... 307
  - geophysical report ... 350
- Tan, S. S. ... 234
- TAN, 92C/15E, 16W ... 221
  - geophysical and geochemical report ... 371
- TAN, 93N/2E ... 107
- TAN, 103I/8E ... 78
- TANA, 92C/15E, 16W ... 221
- TANGLEFOOT, 82E/2E ... 308
- Tanzilla Explorations Ltd., KING, 104I/5W ... 45
- Tanzilla River area ... 44
- TAP, 50° 127° N.E., geochemical reports ... 364
- Taplin, A. C. ... 420
- TAR, 92I/6E ... 265
  - geological report ... 362
- TARN, 92J/3E ... 191
- TASEKO, 92O/3W ... 181
- Taseko Lakes area ... 180
- Taseko Mines Limited—
  - ACT, 50° 121° S.E., geophysical reports ... 260
  - BB, 92O/5E ... 180
  - SUMMIT, 82M/13W ... 230
- TASU MINE, 103C/16E ... 73
  - production, *see* Table 12 ... 428
- Tatlayoko Lake area ... 180
- TATLER GROUP, 82K/8W, *see* COPPER KING, IMPERIAL ... 343
- Taylor, R. ... 411
- Taylor, R. R. ... 186
- Taylor, T. ... 108
- TC, 92I/10E ... 238
- TC, 93N/3E ... 107
- Tchentlo Lake Mines Ltd., BAL, 93N/3E ... 107
  - line-cutting ... 371
- TE FRACTION, 92I/11E ... 267
- Teck Corporation Ltd., HIGHLAND BELL MINE, 82E/6E ... 301
- Teed, A. J. ... 210, 211
- Teknol Mining Co. Ltd., McBELL, 50° 125° S.W., line-cutting ... 363
- TEL, 93C/5E ... 74
  - geophysical and geochemical reports ... 368
- Telkwa Mountain Mines Ltd., SR, PG, SC, 93L/5E ... 91
- Telkwa Range area ... 86
- TENAS, 93L/11E ... 86
- Tennant, S. J. ... 173
- TENT, 92H/16W ... 280
- TERMINUS, 104B/1E ... 57
- Terra Nova Explorations Ltd., DIANE, 93K/13E 109
- Terrace area—
  - metals ... 70
  - sand and gravel ... 400
- Terrace Calcium Products Ltd., limestone ... 392
- TERU, 92G/14E ... 192
- TESSIE, 92H/7E ... 288
- Tetachuck Lake area ... 154

PAGE

- TETRA, 93M/3W ... 99
- Tetu, H. ... 292
- Texada Island area ... 213
- Texada Mines Ltd.—
  - MARMOT, THORNE, 94D/15E ... 104
  - TEXADA MINE, 92F/10E ... 213
    - production, *see* Table 12 ... 427
- TEXAS, 82E/2W ... 303
  - geological and geochemical report ... 350
- TEXAS, 82K/3E ... 331
- TEXAS, 92J/7E, 10E ... 189
- Texas Gulf Sulphur Company—
  - ASCOT, 93L/15E ... 100
    - geophysical and geochemical reports ... 369
  - CAVZ, 93M/8W ... 110
  - ED, 93L/7E ... 121
  - G-TO, 82E/2W ... 304
    - geological and geochemical report ... 350
  - GH, 92P/1E ... 232
  - HORSEFLY, 53° 129° N.E., geophysical report 369
  - NIGHT OWL, 82L/4E ... 300
    - geochemical report ... 357
  - WASH, SHAW, 92P/1W ... 232
  - WHIP, SAW, PICK, 92H/7E ... 289
- T GEE, 93N/6W, 11W ... 105
- TH, 92I/6E ... 257
  - geological and geophysical reports ... 361
- THEBAN, 57° 126° S.W., geological and geochemical report ... 373
- THE LAYOVER, 82E/2E ... 309
- THETA, 92K/3W ... 212
- Thickett, C. ... 325, 429
- Thompson, N. N. ... 207
- Thompson, R. I., report by, WIGWAM, 82K/13W 339
- THOR, 59° 133° N.E., geological, geophysical, and geochemical reports ... 374
- THOR, 51° 119° S.W., geophysical report ... 366
- Thor Explorations Ltd., CY, 49° 120° S.E., geophysical report ... 353
- THORN, 93M/7E ... 113
- THORNE, 94D/15E ... 104
- Thornton, R. ... 115
- Three Forks area ... 330
- 3 WAY, 92H/15E ... 276
  - geophysical report ... 353
- THUNDER, 93G/1W ... 161
- THUNDER HILL, 82E/15E, 16W ... 300
- THUNDER HILL 1 and 2, clay and shale ... 387
- Thutade Lake area ... 103
- TI, 92L/12W ... 201
  - geological and geochemical report ... 365
- TI, 49° 118° S.W., geochemical report ... 351
- Tibbott, D. W. ... 202
- TICK, 50° 119° S.E., geochemical report ... 357
- Tide Lake Flats area ... 54
- TIE, 92F/9W ... 214
  - geological, geophysical, and geochemical reports 355
- TIE, 92L/11W ... 208
  - line-cutting ... 365
- TIE, 51° 119° S.W., geological report ... 366
- TIGER, 103P/11W, 12E ... 60
- TIKI, 93A/12E ... 175
- TIM, 92P/14W ... 183
- TIN, 92H/4E ... 196
- TIN, 93J/1W ... 160
- TINA, 92H/10W ... 281
  - line-cutting ... 352
- Tindall, Bill ... 228
- TINKIRK, 82M/12W ... 228
- TIP, 92I/11E ... 265
  - geophysical and geochemical report ... 362
- TIP, 50° 120° S.W., geological and geophysical report ... 360
- TITAN, 93M/3W ... 99
- TJ, 92I/11E ... 245
- TJ, 93L/2W, 2E ... 126
- TK, 93L/5E ... 91
- TL, 93E/11E ... 97

PAGE

- TL, 49° 120° N.W., geochemical report 354
  - *see also* PINE, REG, DY 278
- TN, 92I/6E 266
  - geochemical report 362
- TNT, 92I/11E, 11W 258
- TOAD, 93K/10E 156
- Toad River area 51
- Toba Inlet area 190
- TOBAGO, 92C/9E 223
- TOBY, 82F/2W 321
- Toby Creek area 343
- Toby Creek Barite, 82K/8W 383
- TOE, 92H/16W 277
  - line-cutting 354
- Tofino area 216
- TOM, 92I/1W 273
- TOM, 92I/6W 241
- TOM, 92I/10W 250
- TOM, 92I/10W 266
- TOM, 51° 119° S.W., geophysical and geochemical report 366
- TON, 93L/7E 122
- TONOPAH, 92J/2W 192
- Toodoggone Lake area 102
- TOP, 82E/2E 307
- TOP, 82M/12W 229
- TOP, 92H/16W 280
  - geophysical report and line-cutting 353
- TOP, 49° 118° S.W., line-cutting 351
- TOPAZ, 82F/2W 321
  - geophysical report 349
- TOPLEY, 93L/9E, 16E 117
  - geological and geochemical reports 370
- TOR, 82L/16W 338
  - geological and geochemical reports 356, 357
- TORIC, 103P/12E 60
- Torwest Resources (1962) Ltd.—
  - ABERDEEN, 92I/7W 269
    - geophysical reports (CROWN) 357, 359
  - MARB, 92I/2W, 3E 272
    - geophysical report 359
- TOTEM, 93L/9E, 16E 117
  - geological and geochemical reports 370
- TOUCH, 92H/15E 276
- Tournigan Mining Explorations Ltd.—
  - AL, 104P/5E 42
  - ATAN, 104P/3E 43
    - geophysical and geochemical report 374
  - HU, 104J/8E 44
  - MACK, 104J/8W 44
  - WOLF, MAGNET, CATHY, 83D/12W 228
    - geophysical report 367
- TOW, 92H/7E 287
- TOWER GROUP, 82E/13E 299
- TOWSER, 82K/11W 341
- TP, 93G/8E, 9E 160
  - geophysical and geochemical report 368
- Trail, sand and gravel 404
- Trail Creek Mining Division 314
- Tranquillity Explorations Ltd., BLUENOSE, KAL, CYE, 82L/14E 240
  - geophysical report 357
- Trapline, 54° 128° S.E., geochemical report 371
- Tremar Minerals Limited, GAZA, JERICHO, 92I/7W 253
  - geophysical report 359
- Trembleur Lake area 109
- Trent Resources Ltd., GOLCONDA, 82E/5W 297
  - production, *see* Table 12 428

PAGE

- Tretheway, E. A. 63
- TRILLIUM, 49° 115° S.W., geophysical report 349
  - *see also* DAISY 346
- TRIO, 92I/6E 250
- Trio Ready-Mix Ltd., sand and gravel 404
- TRISH, 92I/7E, 7W 269
- Tri Valley Exploration Ltd., RAY, 92H/7E 283
- TRIXIE, V, 82F/6W 318
- Tro-Buttle Exploration Limited—
  - GB No. 1 GROUP, 92L/12E 204
    - geochemical report 364
  - GB No. 2 GROUP, 92L/12E 203
    - geochemical report 364
  - KOFIT, 93M/1W 113
  - MERT, 54° 126° N.W., geochemical report 369
  - PAT, 50° 127° N.W., geochemical report 364
  - TC, SPUR, JC, 92I/10E 238
  - TOPLEY, BABINE, TOTEM, 93L/9E, 16E 117
    - geological and geochemical reports 370
  - WOLF, 93M/1W 114
- Troitsa Lake area 98
- TROJAN, 92I/10W 266
- Trojan Consolidated Mines Ltd., ANN, 92I/7W 245
- Troup, A. G. 155
- TROUT, 82E/5W 297
- TROUT, 92L/6E 208
  - geophysical report 364
- TROUT LAKE, 94C/11E 109
- Troy Silver Mines Ltd., CHALCO, 92I/11E 249
- TRUE FISSURE, 82K/11W 341
- Trumpeter Mines Ltd.—
  - JOE, 92I/11E 256
    - geophysical and geochemical reports 361
  - KELLY, PAT, FOX, 50° 121° N.E., geochemical report 362
  - KELLY, WREN, 50° 121° N.E., geophysical report 362
- TT, 92I/3E 273
- TUB, 50° 127° N.W., geochemical report 365
- TUBAL CAIN, 92I/8W 275
- TUK, 103I/9W 81
- TUL, 92H/7E 282
- Tulameen River area 281
- Tull Mines Ltd., MIDNIGHT, 82F/4W 315
- TUNGSTEN QUEEN, 92O/2E, 2W 186
- Tunnel Contractors Ltd., MOUNT COPELAND MINE, 82M/1W 338
- Tupco Mines Ltd., YR, 92I/10E 238
- TURN, 104I/7W 49
  - geophysical report 374
- Turnagain River area 48
- TUT, 93F/3E, 3W, 6E, 6W 155
- TUT, 93M/7E 113
- Twayco Explorations, BIG MISSOURI, 104B/1E 57
- TWEED FRACTION, 92J/15W 186
- Tweedsmuir Park area 161
- TWIN LAKE, 92J/3E 191
- TWIN MOUNTAIN, 82M/4W 234
- 2, 93F/7E, 8W 155
- TX, 93N/6W, 11W 105
- Tyaughton Creek area 185
- TYEE, 92B/13W 224
  - geophysical report 349
- TYEE, 93B/8E 175
- TYEE, 93L/2W, 2E 126
- Tyee Lake Resources Ltd., TYEE, 93B/8E 175
- TYNER, 92I/7W 264
- TYNER LAKE, 92I/7W 264

U

- U & I, 92H/7E 288
- ULL, 92C/9W, 10E 222
- Union Carbide Canada Mining Ltd., CHALCO, 92J/10E 187
- Union Miniere Explorations and Mining Corporation Limited—
  - C, PIN, ART, 92I/9W 237
    - *see also* geochemical report 357
- Union Miniere Explorations and Mining Corporation Limited—*Continued*
  - CLEO, 104I/2W 48
- Univex Mining Corp., Ltd., DARDANELLE, 103I/8E 78
- UNNA, 92O/2W 185
- Unuk River area 54
- UOME, 82F/14W 324

PAGE
UPSILON FRACTION, 92H/7E 288
Urbanovitch, Paul 317
Urso, P. J. 410, 416
UTA, 50° 127° N.E., geochemical report 365
Utah Construction & Mining Co.—
  AIRD, 102I/9E, 16E 200
    geological and geochemical report 365
  BRAD, 92L/5E 206
  DEB, 92L/11W, 12E 203
  EXPO, 92L/12W, 12E 202
  ISLAND COPPER, 92L/11W 204
PAGE
Utah Construction & Mining Co.—*Continued*
  KAINS, 102I/8E 206
    geological and geochemical report 365
UTE FRACTION, 82F/14W 324
UTICA, 82F/4W 316
Utica Mines Ltd.—
  HORN SILVER MINE, 82E/4E 297
    production, *see* Table 12 428
  SUNSET, 82F/4W 316
Utility Mines (Number One) Ltd., TIGER, 103P/11W, 12E 62

V

VAL, 92I/7E, 7W 269
VAL, 93B/9W 173
VAL, 50° 120° S.W., geophysical report 360
VALLEY, 92I/6E 266
Valley Concrete Products Ltd., sand and gravel 404
Valley Copper Mines Limited, VALLEY, 92I/6E 266
Valley Forge Mining Ltd., MM, 92I/10W, 11E 261
Valley Granite Products Limited 385
Valley Granite Quarry, 92H/4E 385
Valley Rite-mix Ltd., sand and gravel 402
Value Lime Minerals Ltd., ELOISE, X, RUSTY, 104P/4W 41
VAN, 82E/6E 302
VAN, 92J/3E 191
VAN, 93L/2E 139
VAN, 93M/6W 99
Vananda Explorations Ltd.—
  CM, 92H/15E 274
  EDEN, EZRA, JOB, CL, 92I/10W 252
    geophysical reports 358
Vanco Explorations Limited—
  BEAR, 92K/5E 211
  KIRBY, 92B/5W 225
  OTTER, 92B/5E, 5W 225
Vancouver Island, sand and gravel 403, 404
Vancouver Mining Division 189
Vanguard Explorations Ltd., VAL, 50° 120° S.W., geophysical report 360
Van Koughnett, J. 348
Van Silver Explorations Ltd., VAN, SUNNY CAVE, 92J/3E 191
Van-West Minerals, Limited, ORMOND, CONTACT, 92E/8E 216
Vargas Mines Ltd.—
  KAS (CALEDONIA), 92L/3W 215
    geological and geochemical report 364
  MN, 92E/1E, 92F/4W 217
    geological and geochemical report 355
Vavenby area 228
VB, 92P/6E 184
  geological, geophysical, and geochemical report 367
V DAY, 82F/14W 324
VE, 93B/9W 173
VENT, 92F/3W 219
  geological and geochemical report 355
VENUS, 92F/9W 214
  geophysical report 355
VENUS, 92G/11E 194
VENUS, 92I/10W 266
VERA, 92I/11E 267
VERMONT, 82K/15W 342
VERN, 92F/9W 214
Vernon area 298
Vernon Mining Division—
  metals 298
  silica 406
Versatile Tunnel Contractors Ltd., STANNITE, 82N/4W 339
VI, 104P/4W 41
VI, 49° 120° S.E., N.E., geophysical report 353
VIC, 82L/16W 338
  geological and geochemical reports 356, 357
VICCAL, 92O/5E 180
VICTOR, 82F/14W 328
VICTOR, 82G/11W 347
VICTOR, 82L/16W 338
  production, *see* Table 12 429
Victor Mining Corporation Ltd.—
  BILL, NW, 92O/3W 181
  VICTOR, 82G/11W 347
VICTORIA, 92H/6W 199
Victoria Mining Division 221
VICTORY V, 82F/14W 324
Viewager, Dale 384
VIKING, 82F/4W 315
Vimy Explorations Ltd., PANAMA, 82K/3E 331
VIN, 92K/3W 211
VIN, 50° 127° N.W., geological and geochemical report 364
VINCE, 92I/6E 250
Vinnedge, E. D. 157
VIRGINIA CITY, 82E/1W 309
  geological, geophysical, and geochemical report 351
Visman, T. 420
VISTA, 93B/8E 175
VIV, 93B/8E 175
VM, 92I/7W 244
Vogrig, Pio 371
VOIGHT, 82E/5W 297
Vollo, N. B. 108, 183, 184, 275
VON, 104G/7W 46
VON, 92O/2W 186
Vowell Creek, placer 377
Vowell Creek Uranium, 82K/15W 377
VW, 92I/11E 267

W

W, 92B/5E 225
WA, 92I/10W 254
WA, 92I/10W, 11E 261
Wadsworth, J. 196
WAG, 93N/1W 108
Walker, A. M. 213
Walker, J. T. 192, 196, 220
Wall, A. 86
Wallis, James 29
Walske Ready Mix Ltd., sand and gravel 401
WAMINECA, 82K/16W, barite 383
WAPO, 92K/6E, 7W 190
WAR EAGLE, 82F/4W 314
WARHORSE, 82F/9E 346
Warren, G. 210
WASH, 92P/1W 232
WASHINGTON, 82K/3E 330
  production, *see* Table 12 429
WATERLOO No. 3, 82E/15E, 16W 300
Watson, I. M. 180, 186
WAVERLEY, 103I/16E 84
WAY, 92I/10W 268
WCR, 82L/6E 298
WD, 93L/1E, 1W 150
Webber, G. L. 377
Webster, Arnold 413

PAGE
WEBSTER, 93L/11E 86
  geological report 370
WEDGE, 92I/15W 240
Weishaupt, P. J. 109
W. E. Lane and Associates, SKYLINE, 82F/10W 334
Wells, A. R. 262
WELLS, 103I/9E 79
Wells area 162
WELLINGTON, 82E/6E 301
WEN, 49° 120° N.E., line-cutting 354
  see also TOE, BOOT, MALACHITE 277
WENDY, 93M/8E 112
Wesfrob Mines Limited, TASU MINE, 103C/16E 73
  production, *see* Table 12 428
Westbrun Exploration Ltd.—
  JACK, 82M/4W 233
  RENNING, GRIZZLY, FERN, KEN, 51° 119° S.W., geological and geophysical report 366
    see also 233
West Coast Mining & Explorations, TAN, 93N/2E 108
West Coast Resources Ltd., ORO DENORO, 82E/2E 306
WEST FORK, 82E/15E, 16W 300
West Road River area 161
WESTERN CROSS, 82K/10W 342
Western Gypsum Limited 389
Western Mines Limited—
  COPPER ROAD, LUCKY JIM, 92K/3W 211
  LYNX MINE, 92F/12E 218
    production, *see* Table 12 426
  PARAMOUNT, 92F/12E 218
  PRICE, 92F/12E 218
Western Peat Moss Ltd., sand and gravel 403
Western Standard Silver Mines Ltd., BOYES, 92L/8E 210
Western Warner Oils Ltd., WW, phosphate 398
Westervelt, R. D. 289
Westgarde, Edward 121, 151
WESTGARDE, 93L/7E 121
WESTMONT, 82F/14W 326
  production, *see* Table 12 429
Weston, E. J. 187
Westview Mining Co. Ltd., HUB, 92I/11E 254
WET, 92I/7E, 7W 269
WET, 49° 118° S.W., geophysical report 350
  see also BULLER 309
Wheeler, W. R. 58
WHIP, 92H/7E 289
Whipsaw Creek, placer 376
White, J. 198
WHITE, 92F/4E 217
WHITE HOPE, 82F/14W 325
White Rock Sand and Gravel 402
Whiterocks Mountain area 299
Whitesail Mines Ltd.—
  CLEO, LANA, 93L/9W 119
  DONNA, KAREN, 93L/9W 118
  FOG, SL, SHERRY, 54° 127° S.E., geological, geophysical, and geochemical report 370
WHITEY, 82F/14E 333
WIGGINS CREEK, 93A/5E 176
  geochemical report 368

PAGE
WIGWAM, 82K/13W 339
Wikstrom, Carl C. 57
Wikstrom, Jean E. 57
WILF, 93D/16W, 93E/1W 161
Wilkins, J. D. 207
Wilkinson, T. D. 328, 350
Wilkinson, William R. 283
Willow, 94C/3E 105
Willow River area 160
Willson Construction Co. Ltd., sand and gravel 401
WILMAC, 92H/7E 283
  geophysical report 354
Wilson, Carl 318
Wilson, James E. 386
Wilson, K. C. 54
WIN, 92F/9W 214
WIN, 92P/6E 184
WIN, 104G/7W 46
Winco Mining and Exploration Ltd., WINCO, 104I/16E 49
Windsor, George 317
WINKLE, 104I/9E 48
WIT, 93N/1W 108
WIT, 50° 127° N.W., geological and geochemical report 364
Wiwchar, M. B. 320
WIZ, 50° 127° N.W., line-cutting 365
WJ, 92I/10W 268
WJB, 103I/9W 76
WOB, 50° 127° N.W., geological and geochemical reports 364
Wober, H. 274
Wodin, B. 199
WOLF, 83D/12W 228
  geophysical report 367
WOLF, 93M/1W 113
  geological, geophysical, and geochemical reports 371
WOLF, 103P/12E 60
WOLF, 104I/9E 48
Wolfe, R. 108
Wolverton, R. E. 336
Woodbury Creek area 333
Woodman, H. C. 376
WOODS, 92O/2W 186
WOOLSEY, 82N/4W 339
Woolverton, R. 79, 98, 118
Worrall, W. J. 339
WR, 92K/4W 210
WR FRACTION, 92K/4W 210
WRANGLER, 104P/4W 41
Wrede Creek area 104
WREN, 82E/2E 308
WREN, 93K/8E 157
WREN, 50° 121° N.E., geophysical report 362
Wright, J. D. 153
WRT, 103I/9W 76
WT, 104I/7E 49
WW, phosphate 398
Wynndel, sand and gravel 404

X

X, 82L/6E 298
X, 92F/5E, 12E 219
X, 104P/4W 41
XI, 50° 119° S.E., geophysical report 357
  see also DCK 298
XENOS, 94E/7W 102
  geochemical report 373
XMAS, 57° 126° S.W., geological and geochemical report 373
XX, 82M/1W 338
X-Y, 92I/10W, 7W 269
  geochemical report 360

Y

PAGE
YALAKOM, 92J/16W 188
Yalakom River area 188
Ymir, 82F/6E 316
York, A. D. 68
Yorke-Hardy, W. 85
YORNOC, 82K/8E 344
  barite 383
  geophysical report 356

PAGE
Yornoc Mining Co. Ltd., DUTCHY, 82K/8W 344
Young, R. J. 274
YR, 92I/10E 238
Yukon Consolidated Gold Corporation Limited, The, LORNEX, 92I/6E 260

Z

Z, 93L/14W 85
ZAP, 93L/12E 80
Zeballos area 215
Zeballos Iron Mines Limited, FL, 92L/2W 215
  production, *see* Table 12 426
ZEN, 92I/6E 260
  geochemical report 362
Zenith Mining Corporation Ltd.—
  LORNA, MARS, DAM, ZEN, MAT, 92I/6E 260
    geochemical report 362
ZEPHYR, 93B/9W 173
ZETA, 92K/3W 212
ZILOR, 82F/4W 315
ZIP, 92J/7E 189
Zulco Explorations Ltd., ALAMEADA, 92I/7E 270
  geophysical report 357
ZYM, 103I/8E 78
ZYMOETZ, 103I/8E 78
Zymoetz River area 77
ZZ, 92B/5E 226

Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.
1970

2,500-370-2006